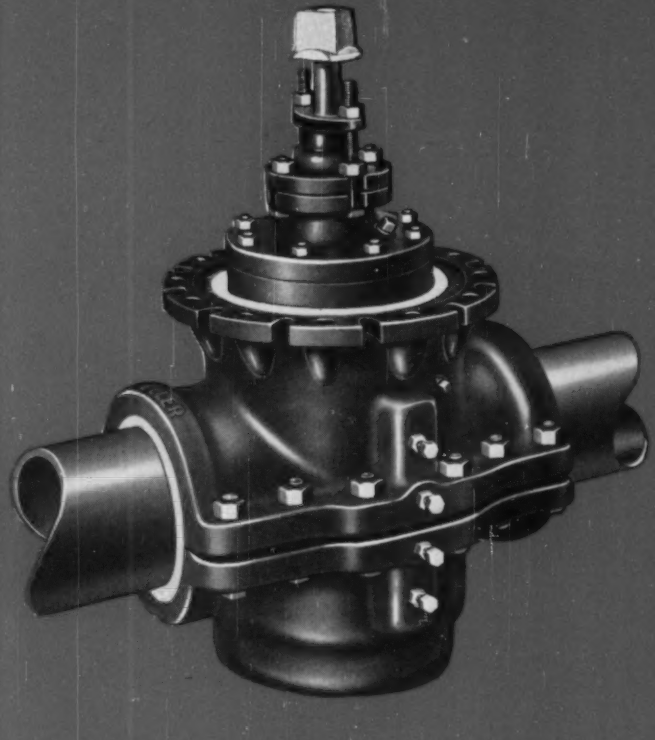
APRIL 1961

# The American City

A Buttenheim Publication

A pipe-barrel view of Milwaukee's new water intake under construction. See page 3.



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APRIL 1961

# The American City

A Buttenheim Publication

MAGAZINE OF MUNICIPAL MANAGEMENT AND ENGINEERING

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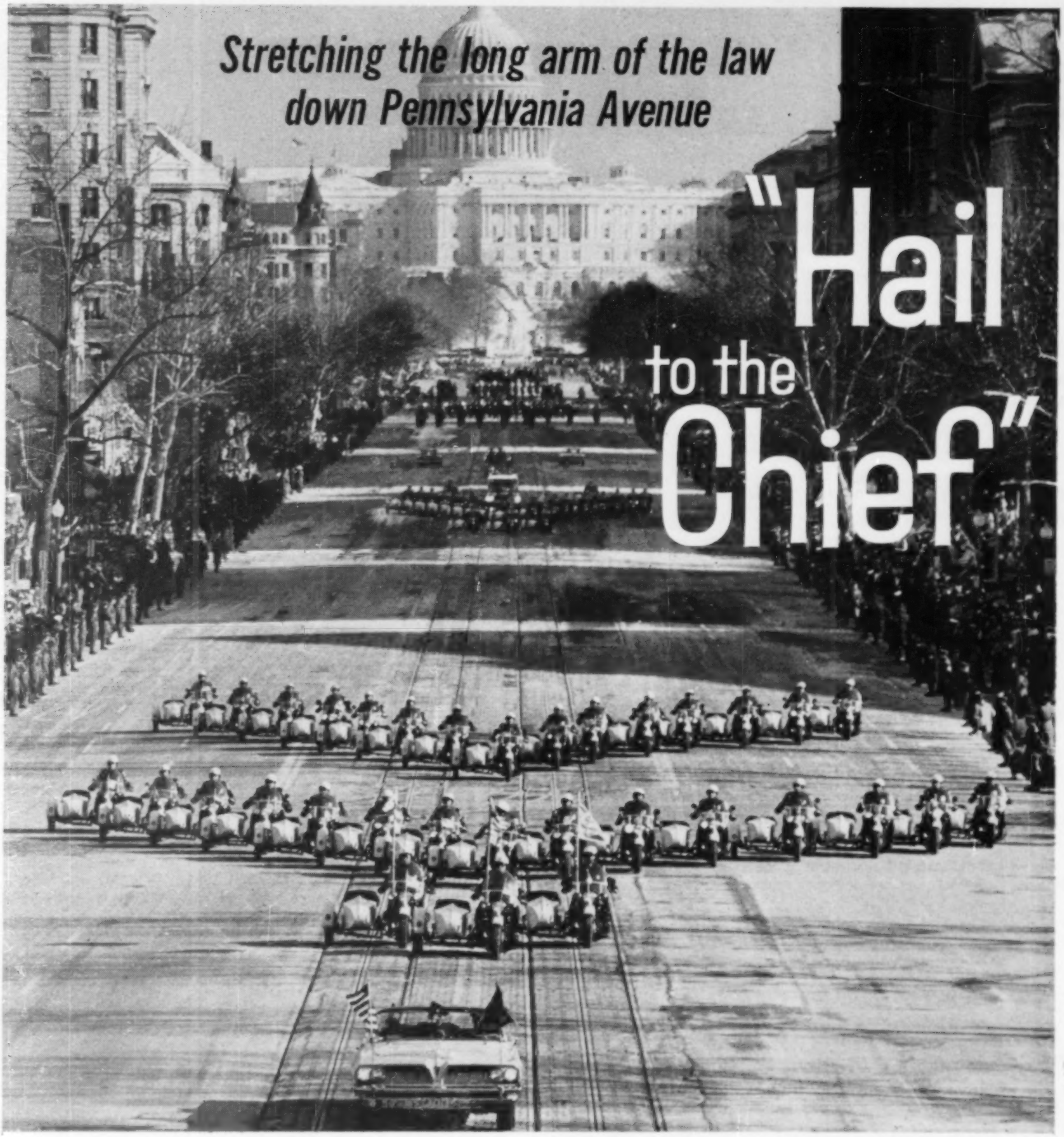
## Cover Picture

The
American City

The large pipe used in constructing Milwaukee's new water intake into Lake Michigan required special handling techniques. Each section, weighing 68 tons, consists of two 16-foot barrels of nine-foot diameter reinforced concrete subaqueous pipe. The journey from point of assembly to point of installation included a short trip by rail, crane and barge. Here one section is about to take the short rail trip to the water's edge. The new intake will more than double the city's raw-water intake capacity and is part of Milwaukee's multi-million-dollar water-improvement program. For the story on this project see page 73.



## Squadrons of Harley-Davidson motorcycles spearhead President's inaugural parade

*An escort fit for a president!* Certainly a proud and historic duty for the police officers who had the honor of leading President John F. Kennedy in the colorful inaugural parade in our nation's capital.

Harley-Davidson police motorcycles made up the crack formations that thrilled the throngs lining Pennsylvania Avenue, waiting to welcome their new president. Nearly 100 Harley-Davidson Solos participated in the inaugural parade, many of them bright new 1961 models.

Whether it's escorting very important people, apprehending criminals or traffic control, Harley-Davidson police motorcycles are the immediate choice of police departments throughout the country. Their outstanding maneuverability, versatility and reliable performance are a few of the reasons. Harley-Davidson Motor Co., Milwaukee 1, Wisconsin.

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Volume 76 Number 4

The
American City

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# LETTERS TO THE EDITOR

## Our Thanks

Just a note to let you know that we all thought that the photo on the cover of the December 1960 issue of THE AMERICAN CITY was beautiful. You certainly put out an excellent publication.

We also were interested in Mr. Kuranz' analysis of water-reservoir types ("The Right Type of Reservoir," pp. 91-3, November 1960). We are in the planning stage of a water-supply improvement which calls for construction of a 250,000-gallon elevated water-storage tank.

ALBERT R. PIERCE
*City Manager*
*Avondale, Ariz.*

## The Second Year

Some of your readers may be interested in how a newly adopted snow-removal program works the second year. Last year, when we adopted our re-designed program, it received its baptism under the complete opposite of the traditional "fire." We had snow, ice, cold, and plenty of them. ("A Snow and Ice Program That Worked," August 1960, p. 115).

The advantage of the thorough preparation last year was that it saved us a lot of work during this season. We simply changed the color of the instruction cover, updated some weather information, and made minor changes in the routes required by new construction.

We are adopting some new procedures, however, that others might like to consider.We now prepare a bulletin after each snow or ice-control project, addressed to the "snowmen,"—those engaged in the actual operation. This bulletin analyzes what went on, tries to present results, and keeps the men closest to the actual work fully informed and hence more cooperative.

Another happy advantage of last year's carefully prepared program is that the severity of the snow enabled us to increase the budget allocations for new equipment. The program was designed for 29 pieces of equipment. Often we could not put more than 22 pieces in the field. With seven new plows and eight new spreaders, we should have no problem.

We also are contacting local contractors and equipment houses and offering them a guaranteed minimum number of hours of work for the winter season in exchange for a priority demand on their equipment and fixed rates. The response has been favorable, giving us a reserve pool of good equipment with trained operators if mechanical failure or severe storms cause us difficulties.

In closing, I might note that based on our experience during the early part of this year, we have found that high temperatures, bright sun and no snow make a really effective snow-and-ice-control program.

ARTHUR GRIMM
*Director of Public Works*
*Des Moines, Iowa*

## Downtown Renewal Tax Benefit

The Chagrin Falls, Ohio, story has an extra message not sufficiently emphasized ("Planning Helped Save a Downtown," p. 91, December 1960). I hope that it will give encouragement to other communities facing this problem.

You may be interested to know that the assessed evaluation of the Chagrin Falls residential properties three years ago was about $60,000. The shopping center addition, which replaces them, is on the tax duplicate today for $350,000. In addition, the assessed values on the newly improved buildings will undoubtedly be higher.

KENNETH L. CRANDALL
*Senior Planner*
*Regional Planning Commission*
*Cleveland, Ohio*

## Council-Management Myths

Thanks for the excellent editorial in the January issue of THE AMERICAN CITY (Council-Management Myths, p. 7). It is something that is true but overlooked, sometimes with malice. Your expression and examples were clear and concise. As municipal administrators we are in your debt.

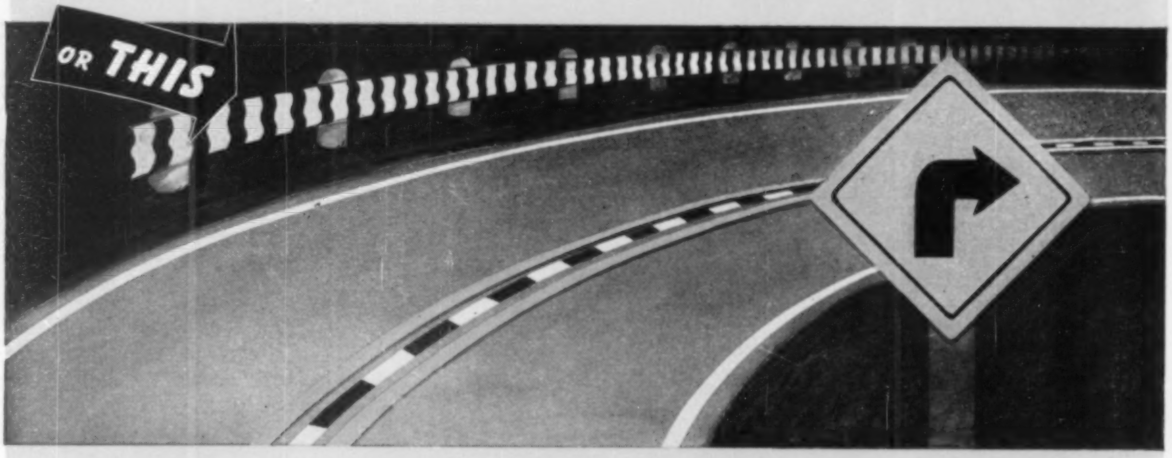
WILLIAM A. SOMMERS
*Manager, Franklin Township*
*Middlebush, N. J.*

---

I was much interested in the editorial, page 7, January 1961 issue. I wish we could clean up a lot more myths about the council-manager plan which seem to abound in these parts.

DONALD E. DUNN
*Administrator*
*Moorestown, N. J.*

# DO YOUR TRAFFIC SIGNS LOOK LIKE...



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**EDITORIAL**

# The President's Message on Urban Problems

President Kennedy's message to Congress and the nation on urban affairs, delivered March 9, has many features that we applaud. Some seem weak but we hope that they will be strengthened as the new administration senses the vitality and frustrations that complicate urban government today.

Basically, the President and his advisors appear to equate housing and urban problems on a par, perhaps giving the former something of an edge. Also, they discuss the metropolitan urban area as though it were a neat, easily identified package, receptive of simple prescriptions. Neither is true. Housing, for all its importance, is part of, and subordinate to, the urban structure. The metropolitan region is an indistinct grouping of fiercely independent local governments that have learned to associate metropolitanism with a loss of that independence. Much more palatable would be the term, "Intermunicipal Cooperation," which democratically gives each a voice without surrender of independence.

Let us examine each of those points in the President's message that bear most heavily on local governments.

## Housing

**1. For families of moderate and higher incomes, he proposes FHA financing, with 40-year mortgages, requiring no down payment.**

Good on two counts.

First, it will stimulate more single-family homes. We presume that this will reawaken cries of "urban sprawl," however the essentials of good residential planning are well known, and, we are confident, will be required in the legislation.

Next, the proposal offers help to the densely populated areas by reclaiming obsolescent and deteriorating housing. The growing demand is for multifamily housing, and 40-year financing will enable builders to supply these in areas now economically suitable only for luxury housing.

**2. For families with moderate and somewhat lower incomes, the President proposes long-term, low-rental and cooperative housing financed from the special assistance fund of "Fanny Mae" (Federal National Mortgage Association). He would like to make these only to cooperatives, limited-dividend corporations, and local housing authorities, and would limit occupancy to those whose incomes exclude them from standard housing in the private market.**

The enforced economic segregation in these limited-income housing programs provides the principal unhappy note. The very least would be to permit tenants to stay if they wish, even though they have climbed the economic ladder.

**3. For low-income families, the President proposes an additional 100,000 low-rent units of public housing.**

Not enough. Probably any of our half dozen great metropolitan centers could use the entire allotment.

**4. In the management of public housing, the President would grant local housing authorities greater freedom in determining housing design and admission of tenants.**

Both are badly needed, especially more freedom in housing design. Past restrictions have created some architectural monstrosities.

**5. For the elderly, the President proposes**

- **Direct loan authorization of $50,000,000 to $100,000,000.**
- **Earmarking 50,000 units of public housing specifically for the low-income elderly.**

Our only caution: the legislation should provide for responsible supervision. Housing for the elderly is not simply a real-estate operation.

## Urban Renewal

**1. The President proposes giving communities wider discretion in determining renewal areas and in relating these projects to an overall plan.**

If the "overall plan" has to reach beyond local government boundaries, this proposal is headed for trouble.

**2. He proposes $2½ billion in urban-renewal funds over a four-year period.**

Not enough information. Let us wait and see what he has in mind. Nevertheless, $2½ billion is a tempting amount, and it need not be spent *only* in the great cities.

**3. He would liberalize payments to displaced businesses in the renewal area.**

Essential.

**4. For urban planning, he would increase the federal share of planning grants to two-thirds.**

This *could* stimulate regional planning organizations, since they would have to be formed to receive the grants.

**5. To preserve open space in urban areas, he proposes 20% grants to help finance this reservation.**

Good.

**6. For urban transportation, the President authorizes the Director of Housing and Home Finance to "study the problem."**

This is a tough assignment. We have been studying it for half a century, and wish the Director well.

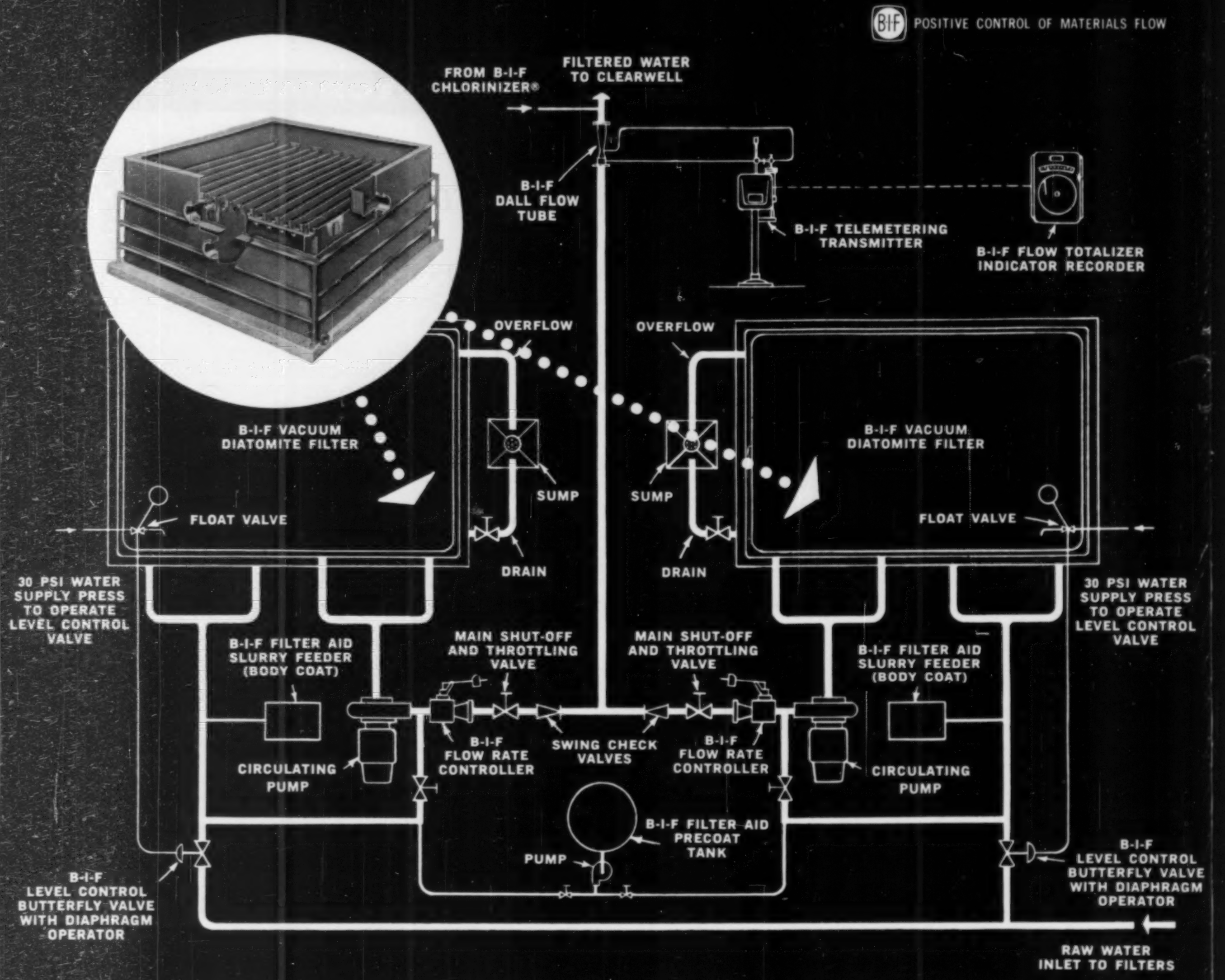
**7. He also wants a Department of Housing and Urban Affairs with cabinet rank.**

Please, Mr. President, only a Department of "Urban Affairs." Housing, as important as it is, is part of the urban scheme and subordinate to it.

## What the Message Overlooked

**We missed comments on other urban problems such as water resources, sewage purification, traffic congestion, air pollution control, public safety, urban sanitation, air-transport facilities, to mention some.**

If the nation grows, cities must solve these problems, as well as housing. If the cities do not solve them, the nation will suffer badly, even if housing is excellent and slums are abolished.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# *New* **B-I-F** *low cost filtration system meets peak load demands!*

You no longer need high cost expansion to meet peak load demands. At a fraction of the cost formerly required, B-I-F can provide a completely integrated filtration and treatment system. The low installation, operational and maintenance costs save thousands of taxpayers' dollars.

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# "Revolutionary" Soil Cement Proved by Time

Twenty-five years ago the South Carolina State Highway Department completed the first scientifically controlled soil-cement road-construction job. Although only 1½ miles in length, it marked a major break-through in highway construction techniques. Today, more than 24,000 miles of soil-cement paving exist in the United States and Canada and its use continues to increase. The same highway near Johnsonville, S. C., today serves a traffic load increased from a few hundred to more than 2,000 vehicles per day. The pavement was only six months old when the picture at the left was taken. The other photo shows the excellent condition of the pavement after 25 years of use. ◄◄

# Asphalt-Paving Correctives

"Distress" in asphalt paving generally can be classified into nine separate categories, the *Asphalt Institute Quarterly* reports. These pavement failures, along with their probable causes and their corrective treatments are:

**1. Edge failure**—Caused by insufficient thickness of mat, excessive traffic loads, lack of shoulder support, base saturation, usually caused by high shoulders that trap the runoff.

*Corrective treatment—check drainage and clean ditches. Check the shoulder for permeability and, if the shoulder is high, blade it down to the surface grade and compact it. Fill the cracks and seal-coat the outer edge.*

**2. Weathered or dry surfaces**—indicated insufficient asphalt in the mix, an old pavement, or adsorptive aggregates.

*Corrective treatment—fog-seal the surface, using a slow-setting asphalt emulsion, at a rate of approximately 0.10 of a gallon per square yard; if the surface is pitted, use a slurry seal or a conventional seal coat.*

**3. Pot holes**—caused by any of the nine types of failures listed, plus water infiltration, unstable base, insufficient asphalt to maintain a bond, or an open or segregated mix.

*Corrective treatment—square up the hole, making the sides vertical; replace any lost base material; spray the cavity lightly with diluted asphalt; fill with premixed material to a compacted height that will allow for additional traffic compaction; seal with 0.1 to 0.25 of a gallon per square yard of asphalt and cover with 10 to 25 pounds of aggregate per square yard. A penetration patch also may be used frequently.*

**4. Alligator cracking**—caused by saturation of the base with water, lack of base support, or insufficient thickness of the mat.

*Corrective treatment—correct drainage faults; apply a thin coat of liquid asphalt with cover of mineral aggregates at rates in item 3; if necessary, repeat the treatment to furnish needed reinforcement. Sometimes patching is indicated.*

**5. Bleeding and instability**—caused by an excess of asphalt, or presence of silt or clay in the mat, with rounded gravel lacking interlock. Often moisture, accumulating beneath the surface, destroys the bond, and traffic pushes the pavement to form waves or ridges.

*Corrective treatment—scarify, remix and relay the surface, adding sand if there is an excess of asphalt. When the cause is a weak base and/or poor draining, the underlying fault must first be corrected. Sometimes shoving and pushing may be rectified by honing or blading off the ridges, patching and seal coating.*

**6. Ravelling**—caused by a lean, or by a overheated mix.

*Corrective treatment—apply a fog-seal, a regular seal with cover aggregate, or a slurry seal as judgment dictates.*

**7. Base saturation**—caused by standing water in side drains, leaking ditches or culverts, or similar conditions which trap moisture beneath the surface. Also caused by too high a percent of fines, or presence of plastic fines in the base.

*Corrective treatment—clean ditches and install a new or additional drainage.*

**8. Longitudinal and transverse cracking**—caused by contraction of the mat or subgrade movement.

*Corrective treatment—crack filling and sealing.*

**9. Distortion and depression**—caused by inadequate compaction of the subgrade or base.

*Corrective treatment—spot leveling and skin patching.*

A tabular presentation of these asphalt distresses, their probable causes, and their treatments, appears in chart form, titled, "The Fever Chart," in the *Asphalt Institute Quarterly* for January, 1961. ◄◄

When the world's largest tractor manufacturer...Massey-Ferguson...designs Industrial Equipment like this Shovel-Loader, years of advanced engineering know-how pay off for you. Exclusive features like "telescopic reach" (see opposite page) make your operation faster, more precise, more efficient. The result is a Shovel-Loader that outproduces and outperforms all others...with maximum capacity, unlimited versatility.

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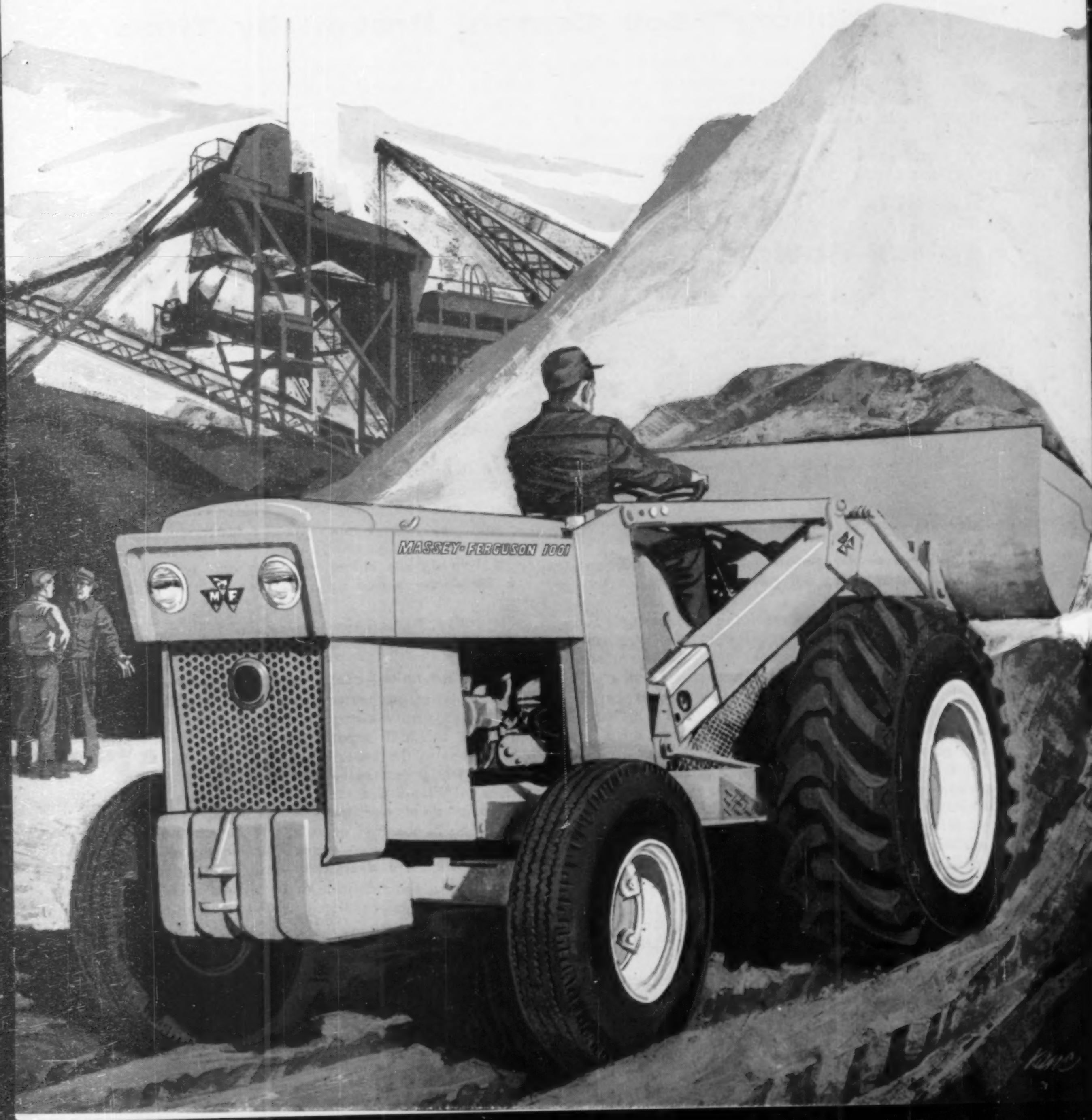
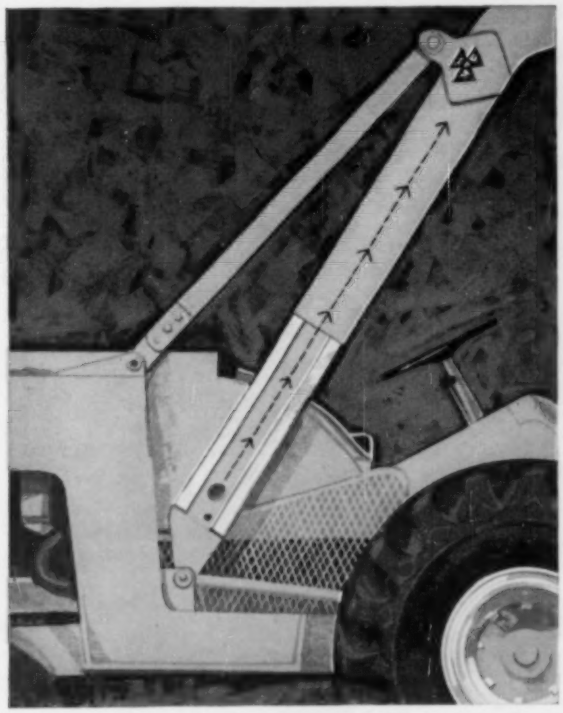
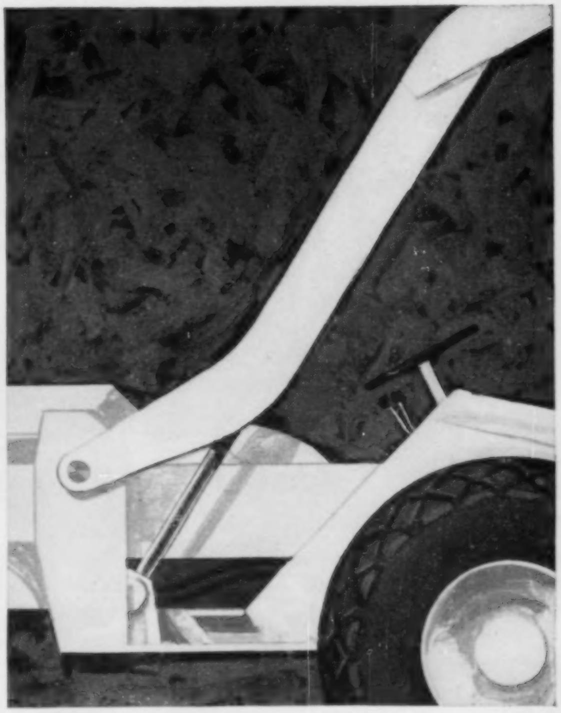


# Engineered to outshovel... outload them all!



**M-F Shovel-Loader**



**Ordinary Shovel-Loader**

Massey-Ferguson's Shovel-Loader performs as no ordinary shovel-loader can. Here's why: M-F lift arms—with exclusive "telescopic reach"—raise 5000-lb. loads to 10 foot, 4 inch clearance height . . . faster. No loss of lift power either . . . even when load nears top of lift cycle. With low draft line of arms—swinging from loader pivot points below the level of the tractor axle—loading thrust is increased to permit "close-in" loading. Compare this with ordinary shovel-loaders. They have high pivot points and inflexible lift arms. Consequently, close-in bucket loading is hampered and loss of lift power results. So before you buy . . . check the features! You'll see why Massey-Ferguson's Shovel-Loader is designed to give you maximum pryout capacity . . . cleaner dumping . . . better load distribution.

**Some other things you'll want to know: Massey-Ferguson Shovel-Loaders develop 9300-lb. pryout capacity . . . have 36° rollback at ground level. Power steering is standard equipment. They handle a variety of quick-change attachments for dozens of specialized jobs. And Instant Reverse and torque converter makes maneuverability and agility the rule—not the exception.**

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**12601 Southfield Road, Detroit 32, Michigan**

CHEVROLET

CHEVY 4-WHEEL DRIVE—NOW ON 12 MODELS

# SEEN IN ALL THE WORST PLACES

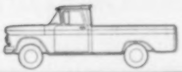
*They keep showing up in places most trucks can't get to* because it takes an awful lot to stop these sure-footed Chevy four-wheel-drive models! Where the job calls for the mobility of a mountain goat teamed with the stamina of a mule, you'll find no finer way to get your work done. And for 1961 the Chevrolet 4-wheel drive lineup is a full dozen models long. You can pick from a *wide* selection—one that's sure to include the best answer to your toughest traction-plus requirement!

■ Put any one of these 4-wheel drive Chevies on any job—then watch it dig in and *go!* Come what may in the way of mud, snow, sand, loose gravel, creek bottoms, swampland or freshly plowed ground, you can rest assured that the extra bite of up to double traction—plus stump-jumping road clearance—will get you through every time.

And you'll like the way a Chevy 4x4 rolls down the highway in smooth 2-wheel drive, ready to give you 4-wheel traction at the flick of a lever, the moment you need it. You'll appreciate the no-clutch shifting ease of the transfer case (whether moving or standing still) and the extra versatility that's yours with a choice of 4-wheel direct or underdrive.

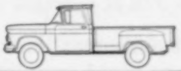
If you prefer the extra snap of spirited V8 power, it's yours at nominal extra cost in any model. Also available at extra cost are heavy-duty 3-speed and 4-speed transmissions and a wide choice of traction tires. You can tailor your Chevy 4 x 4 to fit your needs exactly. Get the full details and turn your traction problems over to Chevy—the traction champ of them all! . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

FLEETSIDE



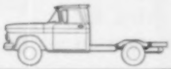
| Model | Max. Load | Body Length |
|---|---|---|
| K1434 | 1400 lb. | 6½′ |
| K1534 | 1300 lb. | 8′ |
| K2534 | 2950 lb. | 8′ |

STEPSIDE



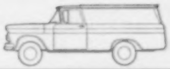
| Model | Max. Load | Body Length |
|---|---|---|
| K1404 | 1450 lb. | 6½′ |
| K1504 | 1350 lb. | 8′ |
| K2504 | 3050 lb. | 8′ |

CHASSIS-CAB

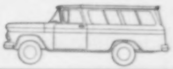


| Model | Max. Load | Wheel-base |
|---|---|---|
| K1403 | 1900 lb. | 115″ |
| K1503 | 1850 lb. | 127″ |
| K2503 | 3500 lb. | 127″ |

PANEL



CARRYALL



| Model | Max. Load | Body Type |
|---|---|---|
| K1405 | 1300 lb. | 7½′ Panel |
| K1406 | 1000 lb. | Carryall (panel type rear doors) |
| K1416 | 1000 lb. | Carryall (tailgate and liftgate) |

SEND COUPON TODAY

PLEASE SEND COMPLETE INFORMATION ON THE CHEVROLET 4-WHEEL DRIVE LINEUP TO:

Name____________________
Company____________________ No. of trucks owned__________
Address____________________
City____________________ Zone________ State________

Fill out and mail coupon to:
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Chevrolet Motor Division
General Motors Corporation
Detroit 2, Michigan

**1961 CHEVROLET STURDI-BILT TRUCKS** CHEVROLET

NO.6
CATERPILLAR

**Paul Matthews, Plant Superintendent, De Kalb County Asphalt Plant, Decatur, Georgia**
"While it was a little more expensive than others, the Cat 944 Traxcavator makes up for this in its ability to stay on the job. Operating and maintenance costs are at a minimum. The performance of the 944 is really outstanding. All in all, we couldn't be more pleased with this machine."

# CAT WHEEL LOADERS–BUILT TO BE READY

**Features that make the Cat wheel loaders first choice for fast work and safety as well as availability:**

**Power shift transmission**—instant, on-the-go shifting, forward and reverse, 1st and 2nd speeds . . . high and low range selector also provides two-wheel drive for roading, four-wheel drive for power and traction in work cycles.

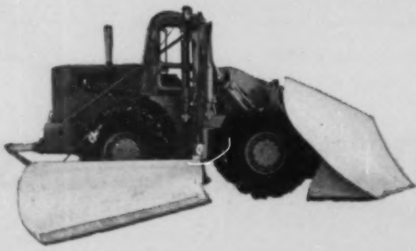
**Operator safety** —lift arms and cylinders are forward of the operator. Visibility is excellent and access is easy—up three wide steps.

**Long reach** —with the lift arms up front, the dumping reach of the 922 at 7′ height—41″ . . . on the 944 it's 51″.

**Operator conveniences**—bucket controls have automatic positioners to speed every cycle; machine controls are

***Make the Cat wheel loaders even more versatile with attachments available from your Caterpillar Dealer***

**Side Dump**


**V-type Plow and Wing**

**Back Hoe**

**A. B. Cole, Director of Public Works, Lexington, North Carolina**

"We found down time and maintenance costs are not nearly so much with Caterpillar machines as with other equipment. When we were ready to buy, we looked over several front-end loaders and found that the 922 is plainly better built. Quality sticks out all over it . . . Cat machines never let us down."

# –BUILT TO COST YOU LESS

all power boosted for easy operation. Dual brakes give operator choice of braking with or without transmission engagement.

There's a Cat wheel loader that answers dozens of job demands. Get the facts from your Caterpillar Dealer. He can show you how and why Cat-built machines are tops in availability and stretch tax dollars by doing the job at the lowest possible cost.

Caterpillar Tractor Co., General Offices, Peoria, Ill., U.S.A.

**CATERPILLAR**

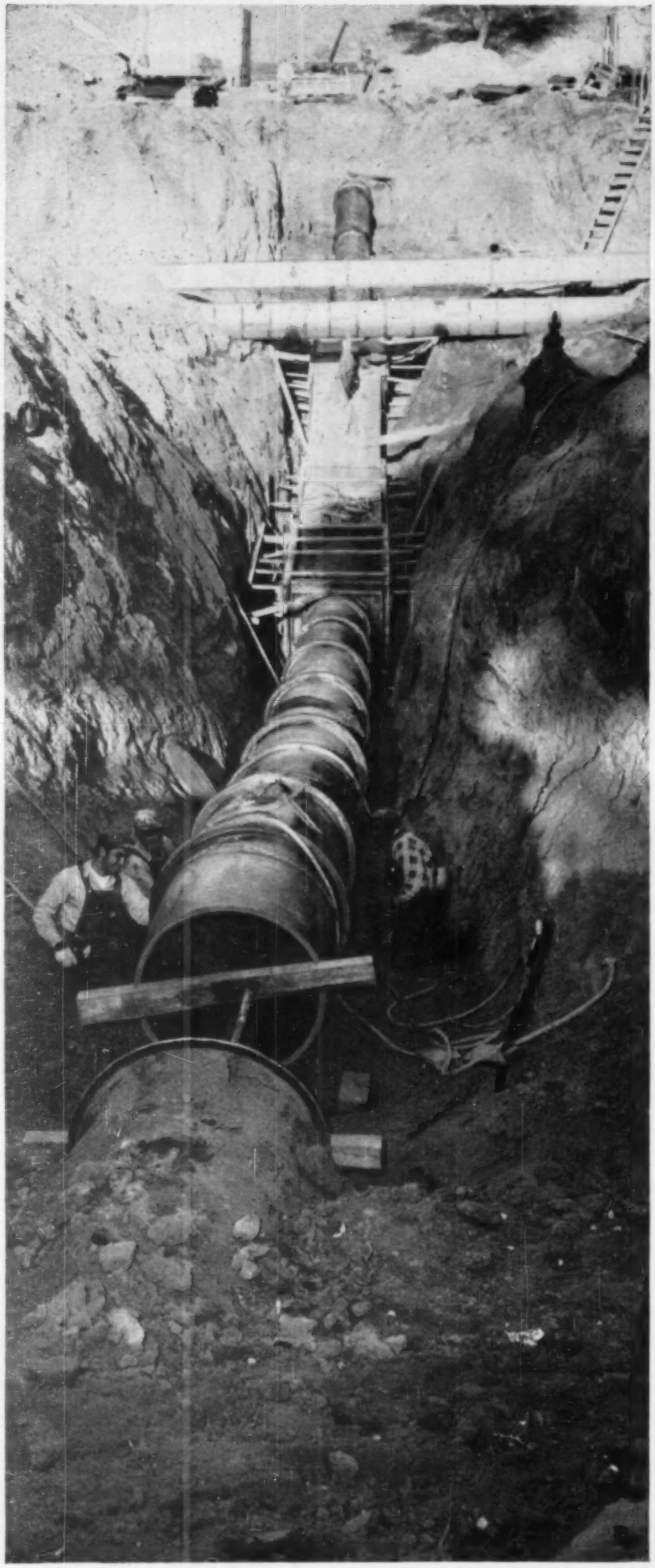
Caterpillar, Cat and Traxcavator are Registered Trademarks of Caterpillar Tractor Co.

**TRAXCAVATORS—"BEST BUY" FOR YOUR TAX DOLLARS**

**Rotary Snow Plow**

**Vibratory Compactor**

**Does your community have a refuse disposal problem? The answer is found in the sanitary landfill movie, "A Decent Burial." It's informative, entertaining . . . ready to be presented by your Caterpillar Dealer. Call him today.**



# DON'T BE FOOLED BY INITIAL PIPE COSTS...

Certain factors concerning the type of pipe to be used for a proposed water or gas project must be examined carefully:

**First**

—how much does the pipe cost, compared to other types?

**Second**

—how often will it require repair?

**Third**

—how long before it has to be replaced?

After all, how much money do you really save if you buy the cheapest pipe . . . then have to repair it frequently . . . and *then* have to replace it within a decade or two?

## You save with cast iron pipe

Sometimes the first cost of jobs where cast iron pipe is specified, is higher than similar projects using cheaper pipe. Yet, in the long run, cast iron pipe costs *less!* Here's why:

- Cast iron pipe rarely requires repairs. Its rugged construction, corrosion-resistant qualities and bottle-tight rubber-ring joints will withstand the most severe pressures. Once an investment is made in cast iron pipe, it is usually your first and last cost because of the absence of maintenance or repairs.
- Cast iron pipe is built to *last*—98 American cities will testify to that. They've had cast iron pipe installations in constant use for over a century! In fact, in Versailles, France, they're still using cast iron pipe water mains that were laid in 1664! Once cast iron pipe is in the ground, it stays there!

Don't be fooled by "low-cost" pipe. Insist on the pipe that will actually save you money over a period of years . . .

In Nebraska—Here a section of cast iron pipe is being relocated. Twenty-five years old, the pipe is still in excellent condition—has never required major repair . . . or replacement.

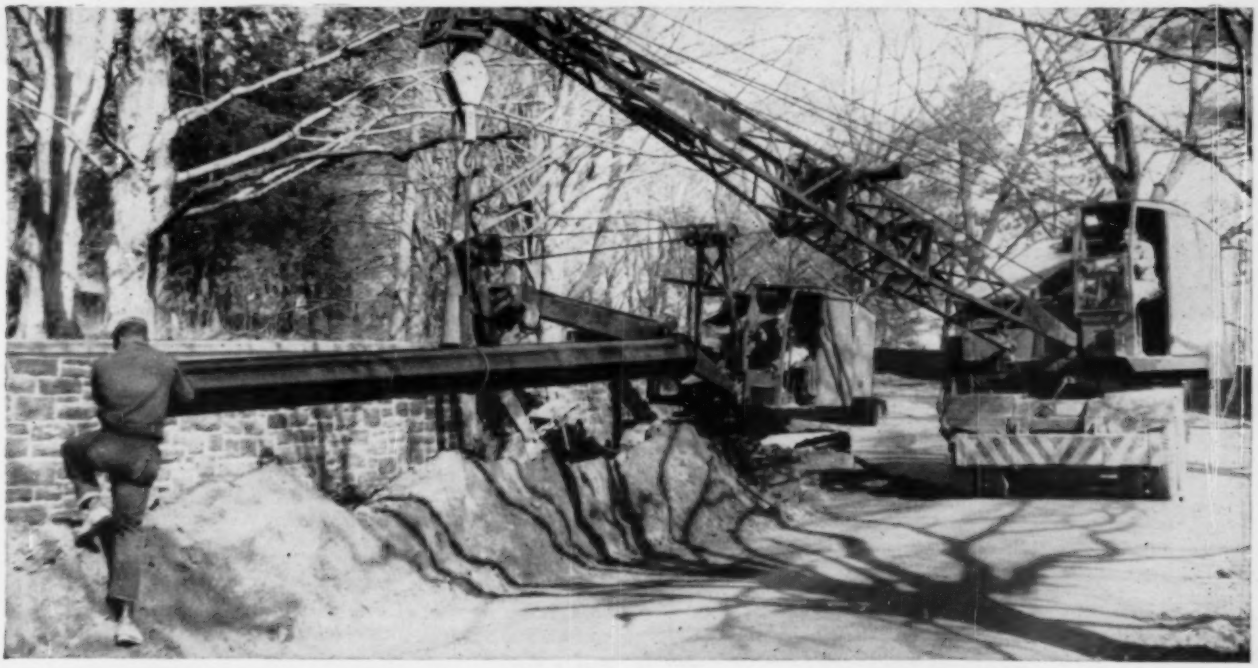
*Rely on CAST IRON PIPE*

In Indiana (above)—"All-weather" cast iron pipe is quickly installed despite wet trench conditions. Slip-on joints were easily assembled, with one workman using a crowbar.

In Kansas (above)—36" cast iron water main. Another part of this main was floated out of its trench by a heavy downpour. Later a 150 psi water test revealed no leaks in the slip-on joints!

In Pennsylvania (below)—This 16" cast iron pipe is being installed as fast as the trench hoe can prepare the trench.

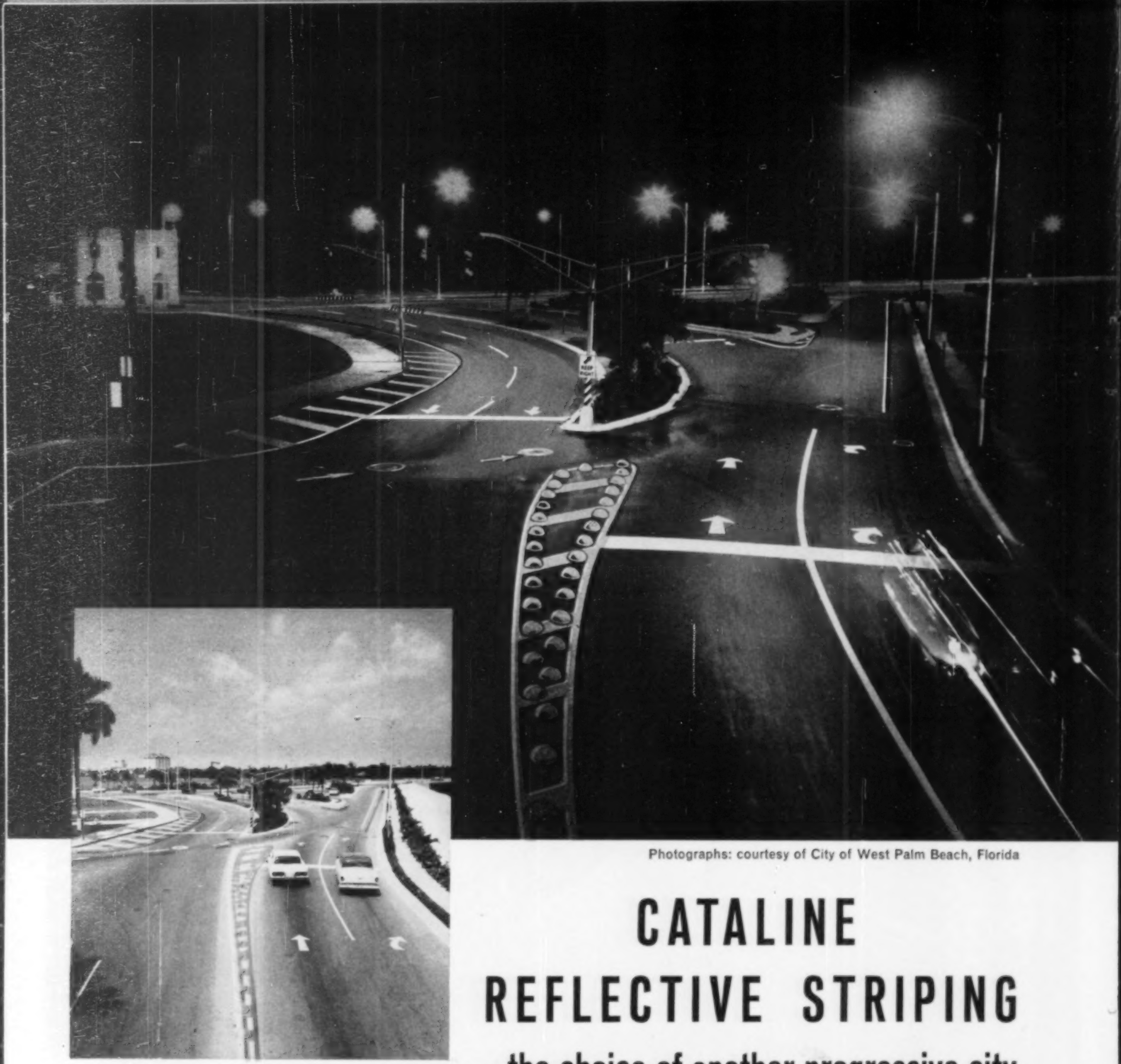
Handy lengths and slip-on joints make cast iron pipe easy to handle, even in crowded neighborhood sectors; require less labor.



# CAST IRON PIPE

**THE MARK OF THE 100-YEAR PIPE**

Cast Iron Pipe Research Association,
Thos. F. Wolfe, Managing Director, 3440 Prudential Plaza, Chicago 1, Illinois



Photographs: courtesy of City of West Palm Beach, Florida

# CATALINE REFLECTIVE STRIPING

## ...the choice of another progressive city

This is Florida . . . the beautiful City of West Palm Beach. You're on South Flagler Drive . . . approaching Lake View Avenue and Royal Park Bridge.

Thanks to long-life pavement markings of Cataline Reflective Striping, traffic moves through this tricky intersection just as smoothly at night as by day. As you travel throughout the city, you'll find more and more Cataline "on duty" around the clock . . . offering full time protection for motorists and pedestrians alike.

Cataline is a special formulation based on Parlon® chlorinated rubber and millions of Cataphote Waterproof Reflective Traffic Beads. Available in white and yellow (pre-mix or drop-on), Cataline will not track after 6 minutes . . . is completely dry in 20. The result . . . neat, clean, brilliantly reflectorized markings that will far outlast any plain stripe you've ever laid.

Progressive communities such as West Palm Beach recognize the advantages of Cataline and profit by its use. How about you? Ask for a copy of Catalog P-160, today.

**CATAPHOTE CORPORATION**

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*In Canada: CATAPHOTE/CANADA LTD. • P.O. Box 727 • Brantford, Ontario*

P-160

MANUFACTURERS OF REFLECTIVE TRAFFIC PRODUCTS

# OUR MUNICIPAL NOTEBOOK

### SLURRY-SEAL

. . . for surface-cracked asphalt streets has proved to be the low-cost answer in Inglewood, Calif. Public Works Director M. R. Pearce uses a rock dust with at least 90% passing a #20 screen and at least 10% passing a #100. He mixes 700 pounds of this with 20 gallons of SS-2 emulsified asphalt and ten gallons of water in a 1-sack Essick plaster mixer. He sprays the pavement to be treated with water and then applies the mix with a "squeegee" frame pulled by a truck. While he does not try to barricade traffic from freshly sealed pavement, he does warn drivers by dropping cones down the center line of each "pull."

The cost is low, the slurry doesn't "wipe out" the curb height, the surface is non-skid, the method does not produce the oil splashes that often occur with the pressure bar of an asphalt distributor.

* * *

### MOSQUITOES ARE ONLY A MEMORY

. . . in Casselton, N. D. At one time, people fought them off by the "swat" method as had been done for years. For the past five years, an Oliver mist sprayer has been making the mosquito as rare as a trolley car.

* * *

### NO PUMP HOUSES NEEDED

. . . for most water-pumping duties in Corpus Christi, Texas. Water Superintendent Atlee M. Cunningham has successfully operated electrically-powered turbine pumps in the open for nearly 20 years. The conventional, vertical, drip-proof type of motor, operating on 440 volts, will need cleaning, varnishing and baking once every three years. The more expensive, totally-enclosed fan-cooled motors will serve for 15 years before needing maintenance. He will provide a pump house only when housing a group of motors at a single location.

Mr. Cunningham also has 2,300-volt vertical motors serving various outside facilities and is now planning an in-town storage reservoir using open-type, horizontal-shaft, centrifugal pumps driven by newer models of drip-proof electrical motors.

* * *

### CHRISTMAS TREE GOBBLING

. . . is the extra, off-season duty that Park Superintendent Edward F. Brarmann assigns to his Asplundh brush chipper. His only precaution—inspect the trees and remove nails, wire, and any other foreign material.

* * *

### GOOD STREET LIGHTING

. . . should meet four general requirements:

- provide time to perceive and recognize an object
- yield light that will disclose the size of the object
- provide contrast between the object and the background
- create favorable conditions of illumination, affected by factors such as condition and uniformity of pavement brightness, the brightness of the object to be viewed, and the amount of glare reflected back to the viewer. A high mounting height of a luminaire is definitely more favorable. A luminaire at a ten-foot height creates 13 times as much blinding effect as one at 30 feet.

* * *

### MACHINE-LAID INTEGRAL CURBS

. . . for concrete pavement are simple. City Engineer W. D. Hurst, Winnipeg, Canada, uses a pair of Dotmar curb-and-gutter pavers with an outrigger attachment permitting its use on concrete pavements of various widths. The combination permits use of low-sump concrete, eliminates overtime work, and provides a more uniform and, he believes, a stronger curb section.

**If you want more information on these topics, or any other municipal problems, drop a note to**

**The Editors**
**THE AMERICAN CITY**
**470 Park Avenue South**
**New York 16, N. Y.**

### TO KEEP A WATER MAIN CLEAN

. . . General Manager John Copley, Elmira, N. Y., can give some practical advice, based on nearly 20 years of experience with a 24-inch main carrying raw river water some 7,000 feet to the city's filter plant.

Since the main was laid in 1911, his first step was to call on National Water Main Cleaning Company to scour out the line and the Centriline Corporation to coat it with protective cement mortar. Following this, he switched the point of chlorine application to the raw-water pumping station, feeding enough to maintain a chlorine residual of at least 1 ppm. This has discouraged slime growths and keeps head-losses low.

* * *

### MOTORCYCLE STREET CLEANER

. . . in Phoenix, Ariz., follows a scheduled route, cleaning downtown areas such as bus stops where pedestrians tend to create extraordinary litter. For this work the Street Maintenance Division uses a three-wheeled Harley-Davidson motorcycle declared excess by the Police.

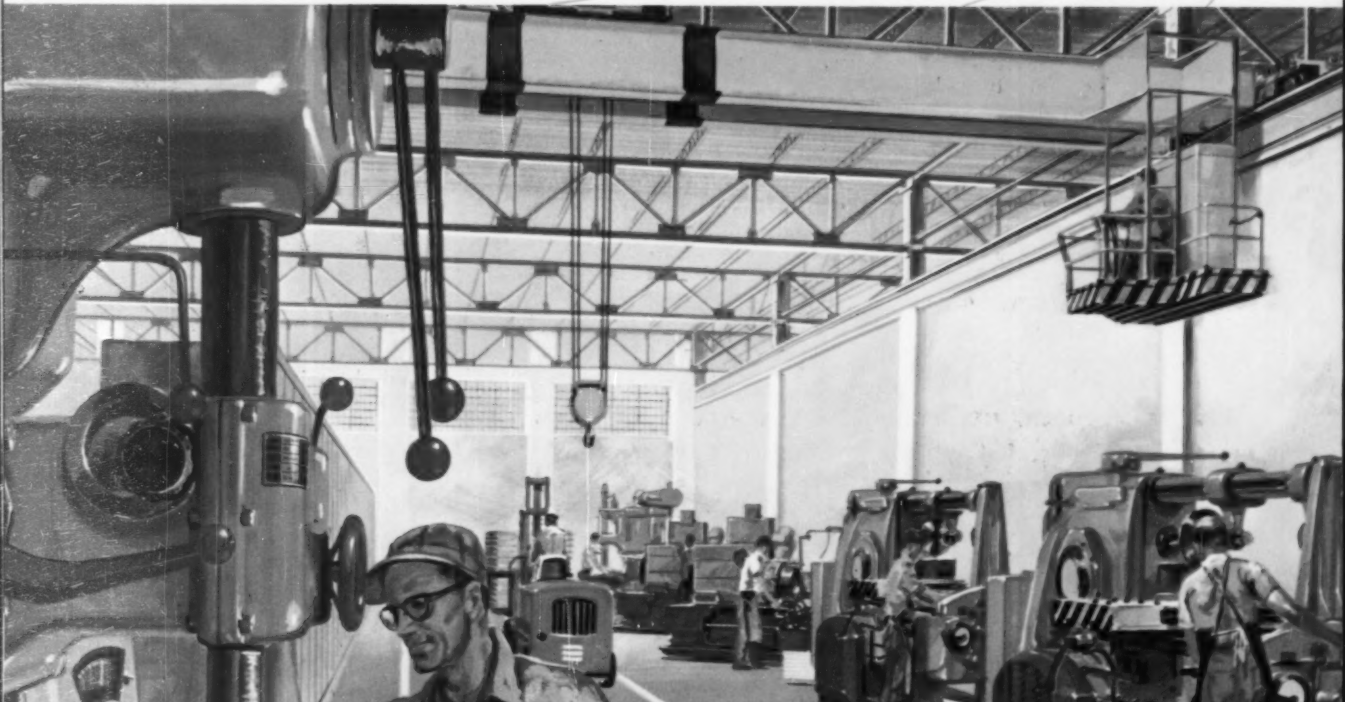
* * *

### A GOOD INCINERATOR

- should occupy a site that provides 100 to 125 square feet of area per ton of rated capacity.
- should have a storage pit providing from three to six cubic yards of volume per ton of rated capacity, depending on the daily and seasonal variations in quantity.
- should have furnaces with grate areas designed to receive at least 55 pounds of refuse but never over 100 pounds per square foot per hour of operation.
- will operate at a cost varying from $3 to $4 per ton of refuse burned. Of this, from $0.60 to $0.85 will represent capitalized costs. ◄◄

**RUST-OLEUM.**

# NEW COLOR



# HORIZONS System

## STOPS RUST AND PROVIDES LASTING BEAUTY

Gone are the days when color was used for the sake of color alone. Today, color is functional—helping to improve morale and increase efficiency—serving to color-code and mark safety areas, etc. The Rust-Oleum New Color Horizons System goes even further. It combines four important factors (1) the ability to stop rust, (2) smart, modern color harmony, (3) the durability to last and last, (4) ease of application that saves time, money, and metal. See how this system can bring lasting beauty to your plant, machinery, equipment, tanks, fences, etc. Your Rust-Oleum Industrial Distributor, with your Rust-Oleum Factory Specialist, will be happy to survey your plant and provide complete recommendations. Prompt delivery is assured from Industrial Distributor stocks in all principal cities of the U.S., Canada, and many countries around the world.

*Faced with coating problems like these? Heat resistance, water resistance, chemical resistance, floors, galvanized metal, coatings that will dry in less than thirty minutes? Rust-Oleum, in its various systems, can be your answer. Call your Rust-Oleum Industrial Distributor, or write for the facts.*

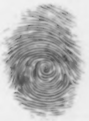
**Apply Rust-Oleum 769 Damp-Proof Red Primer directly over sound, rusted surfaces to STOP RUST and cut maintenance costs**

Just scrape and wirebrush to remove rust scale and loose rust—then brush Rust-Oleum 769 Damp-Proof Red Primer right over the remaining rust. Its **specially-processed** fish oil vehicle penetrates rust to bare metal as proved in radioactive tracing studies. You save time and money, as costly surface preparations are usually reduced.

# RUST-OLEUM®

See our catalog in Sweet's.

STOPS RUST!®



Distinctive as your own fingerprint.
There are imitations,
but only **one** Rust-Oleum.
Accept no substitute.

**PROVED THROUGHOUT INDUSTRY FOR OVER THIRTY-FIVE YEARS**

RUST-OLEUM.
RUST PREVENTIVE
BEAUTIFIES
STOPS RUST!®

***You take the brush! Try a free test sample!***

ATTACH TO YOUR LETTERHEAD

**RUST-OLEUM CORPORATION**
**2984 Oakton Street • Evanston, Illinois**

At no cost or obligation, please send me:

- ☐ New full-color catalog on New Color Horizons System and specialized Rust-Oleum systems. Including color charts and applications.
- ☐ FREE TEST SAMPLE of Rust-Oleum 769 Damp-Proof Red Primer.
- ☐ Please have your representative contact us to discuss a plant survey.

## Two City-Planning Training Courses

The City Planning Department of the Georgia Institute of Technology will offer a basic and an advanced training course in city planning this summer. The first will continue the program held in cooperation with other southeastern universities for the past several years. This two-week summer institute will be of particular interest to those who have just entered the city-planning field. The fee is $150.

For the advanced institute which will meet from July 24 through July 28, Georgia Tech will be working in cooperation with the University of Georgia's Institute of Law and Government, as well as other interested organizations. This one-week program is designed for planning directors and others who have had considerable experience in the field of city planning. This is an advanced course in the preparation and administration of zoning ordinances, which will be open only to principal staff members of planning agencies or consultants who desire and will benefit from an advanced "refresher" course in zoning. The course will cover the basic principles of zoning, new and developing zoning devices, significant court cases, the preparation of zoning ordinances, and techniques of zoning administration. The fee for the advanced course is $100.

The programs for both courses with a list of the participating faculty can be obtained from the Director, Short Courses and Conferences, Georgia Institute of Technology, Atlanta 13, Georgia. ◄◄

## Wright-Designed Center Will Start Construction

A civic center designed by the late Frank Lloyd Wright, generally recognized as the world's greatest modern architect, will go into construction late this spring.

The Monona Terrace Civic Center and Auditorium is a project of the City of Madison, Wis., and represents one of Mr. Wright's last completed architectural designs. It will include:

- Parking structure for 930 cars
- Exhibition hall of 40,000 square feet
- Meeting rooms totalling 17,000 square feet
- Two theaters, one with 460, the other 2,300 seats
- Community center of 30,000 square feet
- Art gallery of 12,000 sq. ft. ◄◄

# Air Pollution Control News

### Research

**A ten-man advisory committee, named by the United States Surgeon General, has recommended that spending on research to control air pollution be tripled by 1968, from the present $11,000,000 a year to approximately $32,000,000 annually. The members believe that the federal government should assume 40% of this cost, with local governments paying for 32% and industry contributing 28%. The committee also recommended the following: spending about $8,750,000 a year to determine the effects of air pollution on human health; determining the effects of air pollution on animals and agricultural crops; finding better ways of measuring the economic loss caused by air pollution in damage to materials; and expanding the nationwide air-monitoring system, while at the same time developing new methods and equipment for controlling the sources of air pollution. The committee, composed of scientists, educators, state and local authorities and industrial representatives, was named by the Public Health Service to follow up the 1958 national conference on air pollution.**

### Chicago's Ordinance

**"Cleaner Air for Our City," an explanation of the 1959 Chicago air-pollution-control ordinance, has been published by the Citizen Information Service, 67 East Madison Street, Chicago 2. It was prepared by Laura Fermi for the Cleaner Air Committee of Hyde Park-Kenwood-Woodlawn.**

### The Culprits

**In a recent speech before the annual meeting of the American Institute of Chemical Engineers, in Washington, D. C., Lauren B. Hitchcock, former director of the Air Pollution Foundation, made the following points: a jet airliner, when taking off, produces as much air pollution as 6,850 passenger automobiles; air pollution from all sources is costing this country $11,000,000,000 annually; more than 50% of the air pollution in most metropolitan areas is due to the activities of the public, not to industry.**

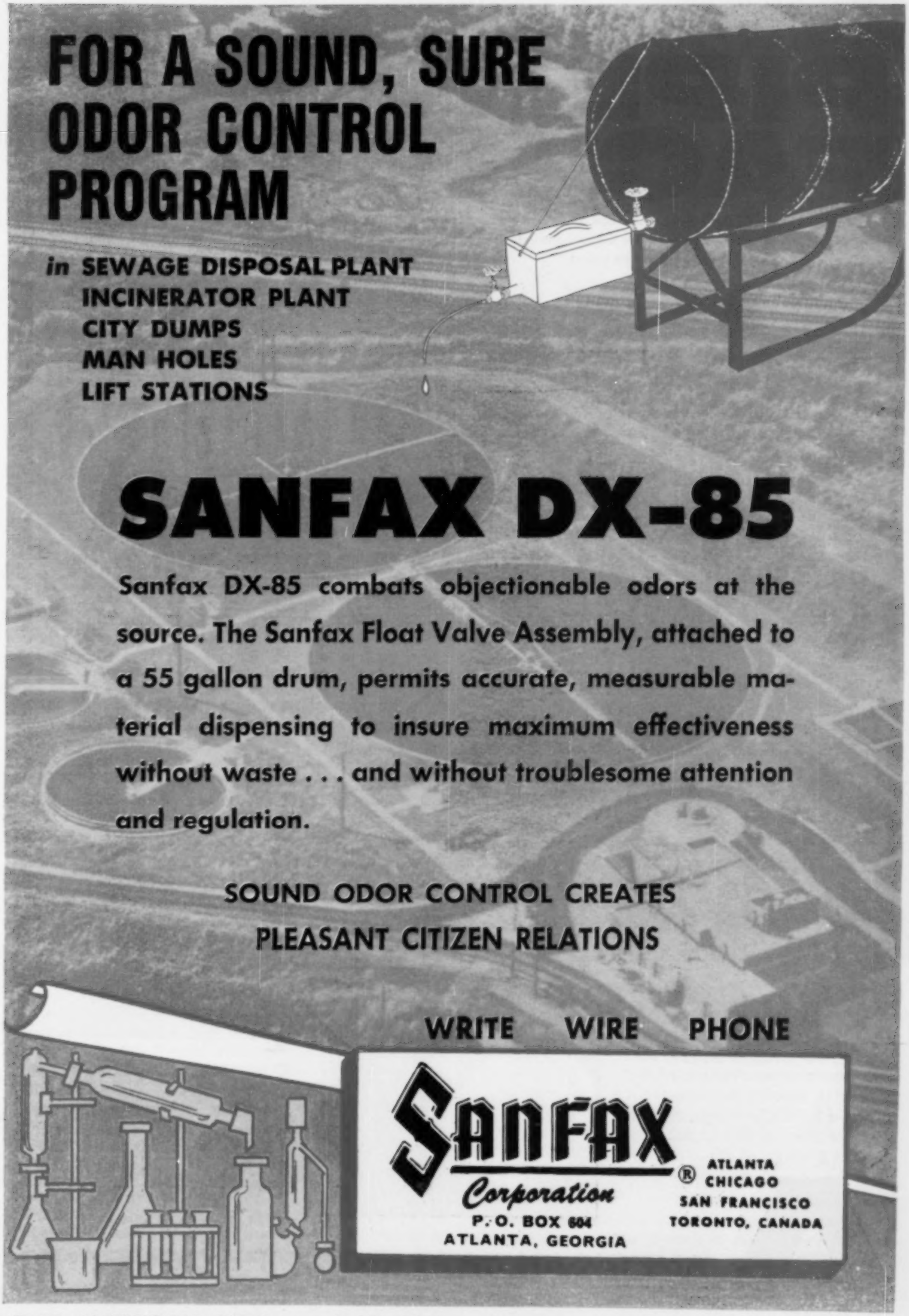
### Major Causes

**Roy Holland, Chief Smoke Inspector for Erie, Pennsylvania, recently rated the major causes of air pollution in that city as follows: first, bonfires; second, automotive exhaust; third, fuel burning for power and heat, in industrial and other buildings, including schools.**

### President Notes Problem

**Recognition of air pollution as a nation-wide problem of importance was given recently by President John F. Kennedy, in a special message to Congress on natural resources. President Kennedy said: "We need an effective federal air-pollution-control program now. For although the total supply of air is vast, the atmosphere over our growing metropolitan areas—where more than half the people live—has only limited capacity to dilute and disperse the contaminants now being increasingly discharged from homes, factories, vehicles and many other sources." The President called air pollution "a serious hazard to the health of our people that causes an estimated $7,500,000,000 annually in damage to vegetation, livestock, metals and other materials." He urged the establishment of a special unit within the Public Health Service to provide, among other things, "new leadership, research and financial and technical assistance for the control of air pollution."**

***—Prepared by Kenneth Kowald***



FOR A SOUND, SURE ODOR CONTROL PROGRAM

*in* **SEWAGE DISPOSAL PLANT**
**INCINERATOR PLANT**
**CITY DUMPS**
**MAN HOLES**
**LIFT STATIONS**

**SANFAX DX-85**

Sanfax DX-85 combats objectionable odors at the source. The Sanfax Float Valve Assembly, attached to a 55 gallon drum, permits accurate, measurable material dispensing to insure maximum effectiveness without waste . . . and without troublesome attention and regulation.

SOUND ODOR CONTROL CREATES
PLEASANT CITIZEN RELATIONS

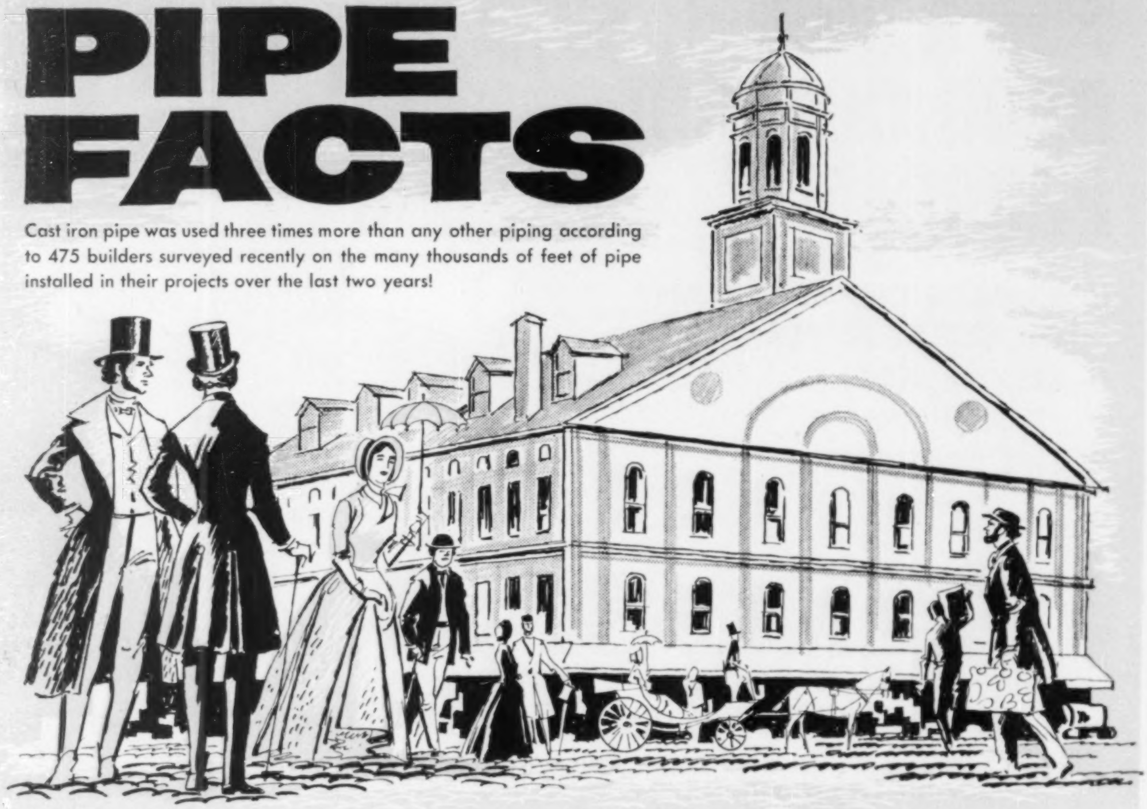
WRITE WIRE PHONE

SANFAX®
Corporation
P. O. BOX 604
ATLANTA, GEORGIA

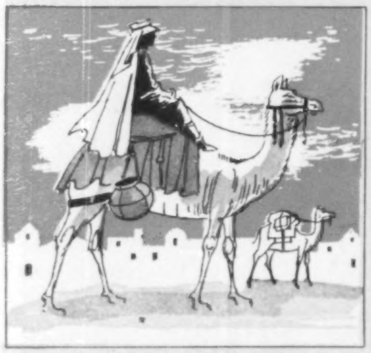
ATLANTA
CHICAGO
SAN FRANCISCO
TORONTO, CANADA

# PIPE FACTS

Cast iron pipe was used three times more than any other piping according to 475 builders surveyed recently on the many thousands of feet of pipe installed in their projects over the last two years!

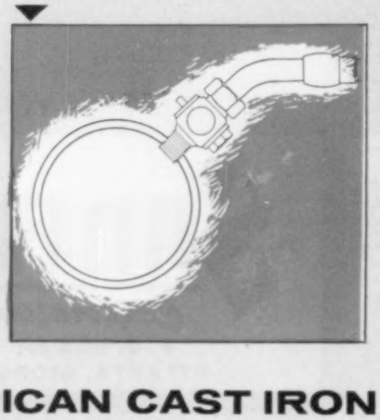


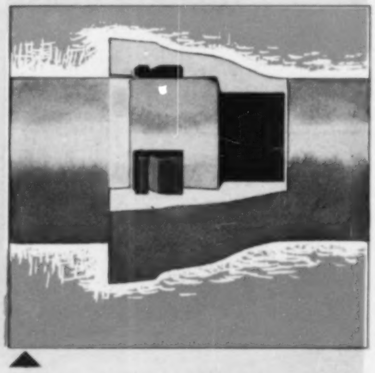
DO YOU KNOW that President Kennedy's great-grandfather landed in Boston in the late 1840's . . . about the time that Boston's first cast iron water mains were installed? That same cast iron pipe—installed in 1847—is still in service. It is not surprising that more than 100 years later, cast iron pipe continues to be used extensively in Boston's water distribution system.



DO YOU KNOW that camels can go as long as two months without drinking water? For the rest of us, water is a daily necessity . . . residents of St. Louis, for example, consume 226 million gallons of water on peak days, or 156,944 gallons per minute!

DO YOU KNOW that service taps in cast iron pipe are far stronger than those in composition pipe? Direct force on the corporation cock installed in 6" Class 150 AMERICAN cast iron pipe resulted in breaking the service cock at 1,640 pounds. The corporation cock was torn from the wall of a similar class and size composition pipe at 940 pounds. And the pipe wall failed!





DO YOU KNOW that the AMERICAN Fastite Joint requires only a single joint component . . . a superior, double-sealing gasket . . . for each 18 or 20-foot length of pipe? Each joint on a 13-foot length of composition pipe requires two gaskets...a double joint with consequent double liability.

**AMERICAN CAST IRON PIPE COMPANY**
BIRMINGHAM ALABAMA

# How Peru's Water System Differs

*The Latomilla Water Plant at Arequipa typifies the modern type of Peruvian water supply . . .*

*. . . while here is another type.*

Water supply and distribution in Peru show marked differences from those of the United States: major water-supply projects have thus far been financed by direct grants from the national government, rates collected average less than half of current operating costs and materials cost for main extensions averages 80% of total job costs.

Arequipa, the second largest city, has a ratio of eight persons per water connection, twice that of the United States. Some 90,000 people there have water service in their homes through 11,000 service connections. Another 50,000 people live beyond the limits of the present water system. The per-capita water requirements of 90-100 gallons per day is laid to the fact that most services are unmetered. Treatment of the river supply takes place in a modern and efficient alum coagulation and rapid sand filtration plant. Now being operated below rated capacity, the plant should be able to run well above the present 3.4 mgd due to recent developments in filtration rates in excess of 2 gpm per square foot.

A proposed $7,000,000 project includes strengthening of the distribution system, new ground storage reservoirs, extensions to suburban areas, water meters for all services and improvement of the supply. The National Public Works Ministry has completed plans and specifications for the entire job. A proposed law will establish an "Autonomous Enterprise," similar to the authority form of managership in this country. The new "Enterprise" will have authority to establish service rules, enforce collections and set rates which will pay operation and maintenance expenses as well as covering debt service. The proposed rate structure retains the "social" feature, fairly common in Latin America, of reducing the charge to those of modest means. It does, however, contain a reasonable minimum charge and a decreasing unit rate with increased volume, which are not yet in popular use in Latin America. It will allow 15 cubic meters of water for a minimum monthly bill of 15 soles (4,000 gallons for 56 cents).

Even with autonomous control and sound management, Latin American water utilities have great difficulty in finding risk capital for their construction needs. International banks, sympathetic as they may be toward better water, can accept only the soundest of projects. The Point Four Program provides vital assistance for Peru and many other countries to help themselves by setting up reasonable programs so that they may take advantage of loans from the international banks.

HARRIS SEIDEL
*Superintendent of Water and Sewage Treatment*
*Ames, Iowa*

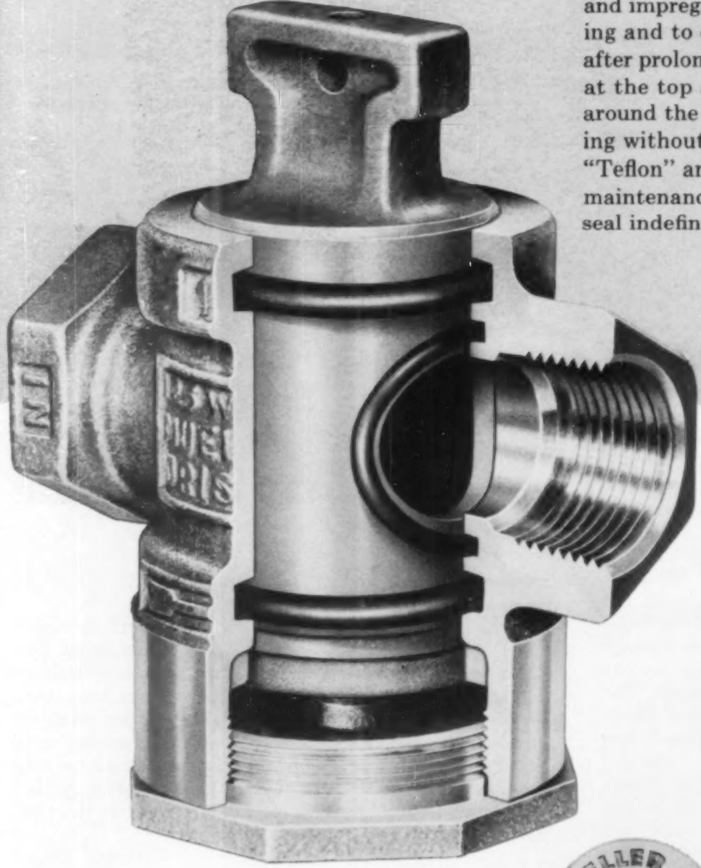
---

Mr. Seidel traveled to Peru to inspect these conditions first hand as a consultant associated with the Federal government's International Cooperation Administration program.

# *MM Oriseal® curb valves by MUELLER®

***MINIMUM MAINTENANCE**

■ Oriseal design features add new benefits to the time-proven "plug valve". The plug of the Oriseal is coated and impregnated with "Teflon"* to assure easy turning and to eliminate "sticking" or "freezing"— even after prolonged idleness. Dependable O-rings are used at the top and bottom of the plug and in the body around the outlet port to give positive pressure sealing without mechanical means. This combination of "Teflon" and O-rings completely eliminates periodic maintenance and extends the service life of the Oriseal indefinitely.



- **Easy to operate—anytime!**
- **Positive lifetime pressure sealing!**
- **Extremely long cycle life!**
- **Permanently "lubricated" without grease!**

*Write for illustrated folder and test report on the Oriseal Curb Valve.*

**MUELLER CO.**
**DECATUR, ILL.**

Factories at: Decatur, Chattanooga, Los Angeles
In Canada: Mueller, Limited, Sarnia, Ontario

5885

*Registered trademark of the DuPont Company

# A Clean Sweep For Rye

TENNANT
TENNANT

*The small sweeper cleans parking lots before these cars fill them up.*

If we were to choose one word with which to describe our commercial-area sweeping, it would be "dustproof." Our Tennant Model 100 lifts the dirt from the pavements without the use of water and with nary a speck of dirt to besmirch the shining display windows only a few feet away.

Prior to the purchase of the new sweeper, we used a type which needed water for dust control. The old one still serves about eight months of the year, cleaning each residential street on the average of once per week. It also windrows leaves in the fall.

Six days per week, Sunday through Friday, the operator wheels the Tennant out before dawn to tackle the two-mile route through the center of the city. He also cleans our five off-street parking lots, each of which contains between 30 and 170 parking spaces. We have no parking prohibitions for sweeping purposes, but the operator has little difficulty as the streets are practically vacant at daybreak.

After completing the three-hour machine route, the operator returns the sweeper to the garage and starts hand sweeping. This consists of city-owned sidewalks, areas between parking meters and around parked cars. If any merchants are so crass as to sweep some dirt into the freshly-cleaned street we graciously sweep it up by hand. We want to protect our reputation for having ultra-clean streets.

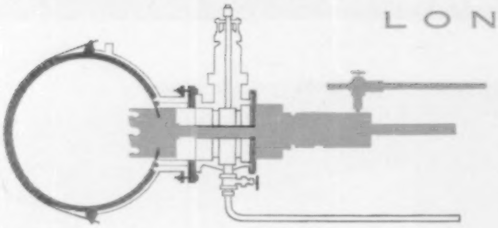
Thanks to the new sweeper, our streets are now clean 12 months of the year. Only when snow or rain interferes do we skip the daily sweeping. We use some sand for skid protection on hills and curves during icing conditions. After the ice has gone, the Tennant protects our reputation by picking up the grit even though the temperature may have fallen again below freezing.

VINCENT H. BAUM
*City Engineer*
*Rye, N. Y.*

## Mechanical Rival

The street sanitation man in London, England, has reason for concern as he eyes a smaller version of the mechanical sweeper so familiar in the United States. This power sweeper, a small Wayne unit made in the U. S., does a better job than its human counterpart. It can also embellish the cleaning chore by spraying a sweet-smelling disinfectant as it goes about its work. If a determined look helps, this operator is doing a good job. ◄◄

LONG-TERM ECONOMY



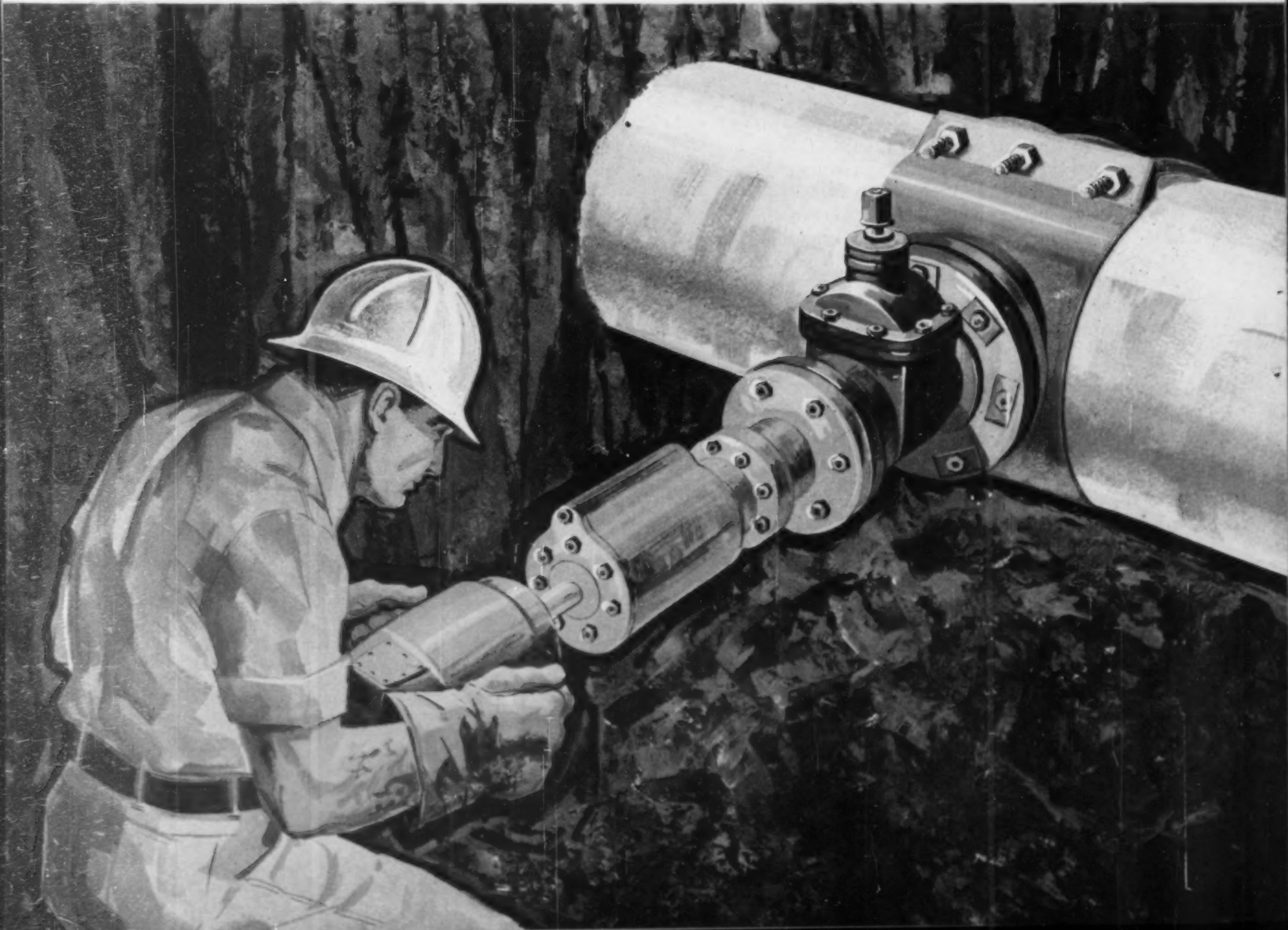
# TAPPING UNDER PRESSURE

Pressure tapping Concrete Pressure Pipe is easy and economical. A small crew working with standard equipment can install a new outlet in a concrete pipeline in a few hours, without interrupting service to your customers. ■ Saddle type outlets are readily available for installation by your own forces or by others. Properly installed with protective concrete coatings, these outlets will be as durable and dependable as the pipeline itself. ■ To keep pace with the constant increase in demand for water, most municipalities and water agencies in the West have successfully expanded existing water supply systems by pressure tapping their concrete pipelines. ■ In addition to other assistance an American sales engineer will be glad to show you a motion picture film demonstrating the tapping procedure. The simplicity of pressure tapping is another reason why Concrete Pressure Pipe means long term economy for you.

**American Pipe and Construction Co.** · Los Angeles · San Diego · Hayward · Portland
Bogota, Colombia / **American Concrete Pipe Co. (subsidiary)** · Phoenix · Albuquerque

*A MEMBER OF THE AMERICAN CONCRETE PRESSURE PIPE ASSOCIATION*

American
PIPE AND CONSTRUCTION CO.



*The Lo-Blo Air Broom and the Gravely tractor with an attachment team up to do an effective job.*

# Save With Mechanized Leaf Pick Up

Mechanizing the leaf pick-up operation has enabled Robert Sharkey, Park Superintendent of Attleboro, Mass., to convert six acres of leaves into 75 neat bales, with three men in 7½ hours. Unbaled, these leaves would require 50 truck trips to the compost heap; baling cuts the hauling time to about one-sixth.

A Lo-Blo blower cleans a swath six feet wide, creating a windrow which the Gravely tractor with a leaf attachment pushes into a pile. A tractor-mounted McCormick hay baler then attacks the piles, leaving behind the neat, yard-long bales.

After composting with occasional stirring, the resulting mixture is put to work mulching shrubbery. In this manner Attleboro's 500 bales of leaves per year not only are processed at a saving but contribute toward more beautiful parks at the end of two-year composting period. ◄◄

*A three-yard truck box would not contain this pile which the pusher on the tractor accumulates.*

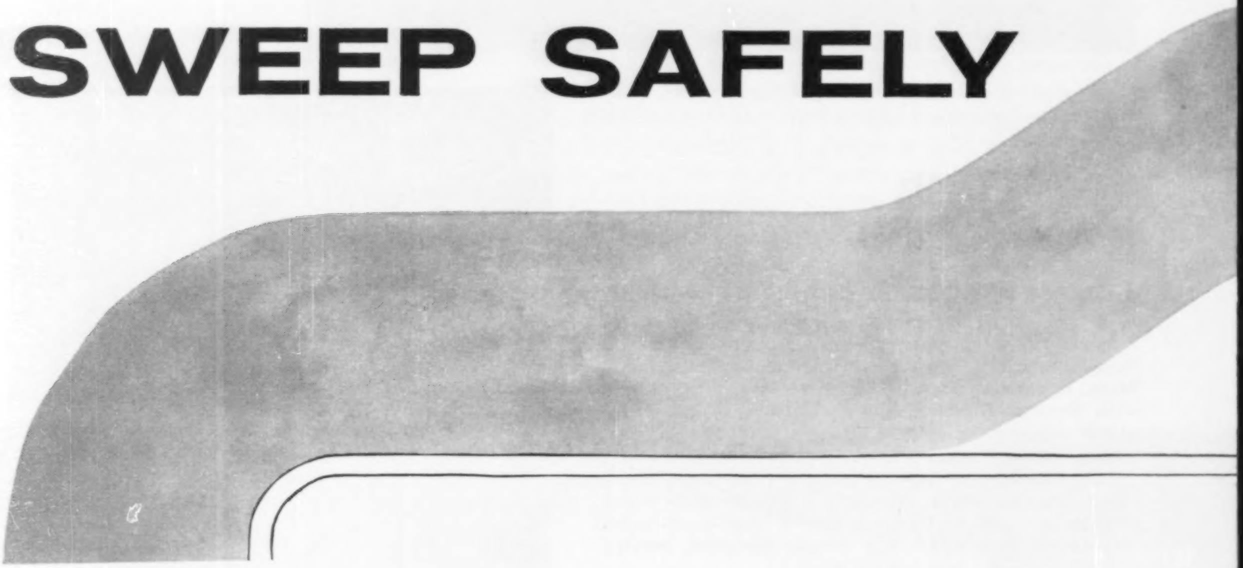
→

*After finishing the pile on the left, the McCormick baler attacks another.*

*Now that the leaves have been baled, they can easily be hauled away to the compost heap.*

*AUSTIN-WESTERN PRODUCTS SAVE TIME AND MONEY*

# SWEEP SAFELY

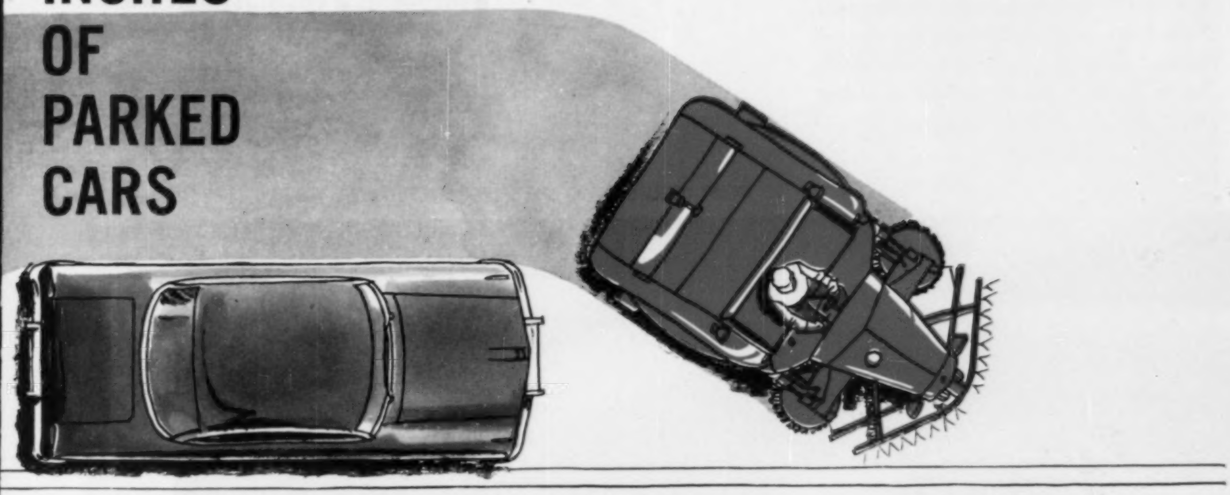


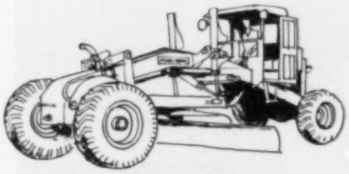
How? With an Austin-Western rear broom motor sweeper. Automotive type steering makes A-W sweepers highly maneuverable, easy to steer. The operator sits up front . . . ahead of the broom and hopper, where visibility is unobstructed. He can see exactly where he's going and what he's sweeping. The result is a *cleaner, more efficient sweeping job* within inches of parked cars and other obstacles. This same visibility and maneuverability keeps gutter broom working against curb even at corners.

And just as important as the sweeping efficiency is the extra safety that goes with full visibility. No blind spots; operator *sees* where he's going.

Austin-Western sweepers are available in 2 and 4-plus cu. yd. models. And there's an A-W distributor near you. Give him a call or write to us in Aurora.

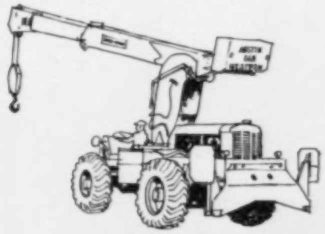
# WITHIN INCHES OF PARKED CARS





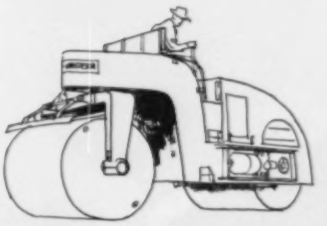
**A-W POWER GRADERS**

9 models; all-wheel drive and steer 4-wheel Pacers and 6-wheel Supers. Weight classifications to 30,000 lb., power ranges to 165 hp.



**A-W HYDRAULIC CRANES**

5 models. Capacities to 11 tons. Self-propelled and truck or stationary mounting. "Live" hydraulic booms. Maximum boom lengths to 48 ft.



**A-W COMPACTION EQUIPMENT**

Variable weight tandem and 3-wheel rollers to 14 tons; 3½-6 ton portable tandem; Roller-Compactor; vibratory attachment for most 3 wheel rollers.

**Austin-Western** CONSTRUCTION EQUIPMENT DIVISION, AURORA, ILL.

**BALDWIN · LIMA · HAMILTON**

"A SEWAGE PLANT WITH NO ODOR! HOW DO YOU DO IT?"

Solvex kills objectionable odors fast, helps make sewage systems good neighbor systems. Solvex Concentrate is even more efficient when used in lift stations . . . controls the growth of sulphide producing microorganisms . . . prevents spread of fungi . . . cuts slime and grease deposits. Does not affect B.O.D. Simply dilute with water and apply Golden Solvex Concentrate near source of odor for dramatic, long-lasting control!
For on-the-spot assistance, see the man from National Chemsearch. He's a well trained specialist, backed by one of the finest research staffs in the industry. Write for detailed information.

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PLANT OPERATORS WHO USE SOLVEX CONCENTRATE NEVER HAVE ODOR PROBLEMS

# SEWERAGE AND SEWAGE PURIFICATION

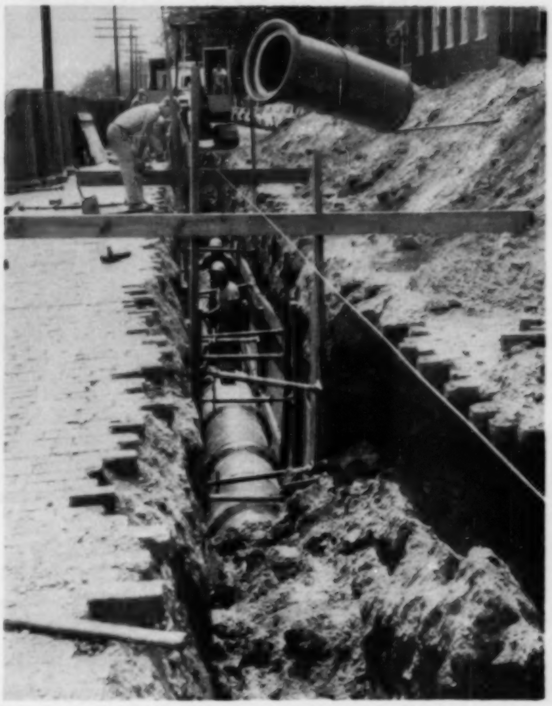
## Fast Pipe Laying Increases Job Safety

Poor soil conditions required special precautions during sewer construction work in Gallipolis, Ohio. This was particularly true in the deep cuts close to the river where the greatest part of the work was to be done.

To decrease the possibility of cave-in accidents, the consulting engineers, Burgess & Niple of Columbus, Ohio, specified fast-laying pipe. This would cut to a minimum the length of time the trench would have to be open.

The contractor used large-diameter clay pipe with Wedge-Lock plastisol compression joints manufactured by the Logan Clay Products Co. of Logan, Ohio. Although solid shoring was used to hold the trench sides during pipe-laying operations, Wedge-Lock proved advantageous since generally only one man needed to be in the trench. No additional preparation was required before or after jointing, making speedy pipe laying possible. As soon as the joint was made, it was ready for backfill.

Tests made on 12-, 21- and 24-inch lines have been well under the allowable 500 gallons per day per mile as required. ◄◄



*The unstable soil caved in immediately upon the removal of the shoring. Fast-laying pipe reduced the number of men needed in the trench as well as the time that the trench had to remain open.*

## Small Cities Must Pay More For Sewage Purification

While stream pollution has been named "America's Disgrace," at the same time an effective abatement program has proved the most difficult package to sell in the entire municipal improvement kit. This was emphasized by Robert R. Harris, assistant chief, division of water supply and pollution control, Public Health Service, at the recent American Municipal Congress, held in New York City.

Recent bond election results show a 20% defeat of those involving water and sewerage projects, demonstrating that Mr. and Mrs. Voter place these services in a low priority. Water works and even collecting sewers get preference over sewage treatment.

Nevertheless, in the next 20 years, the nation's urban areas will probably spend over $31 billion for sewerage projects and over $24 billion for water supply and treatment purposes.

The small communities have the greatest number of offenders who pollute the nation's water courses but the large cities do the greatest amount of polluting damage. Nearly 90% of the municipalities discharging raw or inadequately purified liquid wastes have less than 10,000 population. Only 3% have populations above 50,000, yet they make up 60% of the total population involved.

The small community has to pay more for sewage-purification facilities. On a per-capita basis, towns of less than 10,000 pay double the amount of cities over 100,000. Communities of less than 1,000, pay roughly quadruple. Typical costs run as follows:

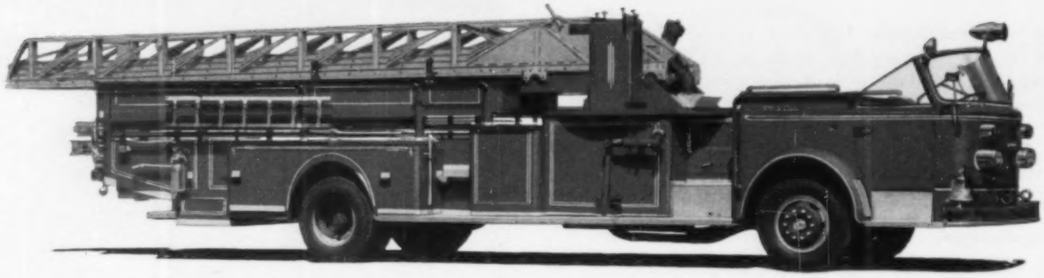
| Population | Construction Cost | Operation Maintenance Per Year | Annual Cost until bonds are retired | Interest Paid (20-year Bonds) |
|---|---|---|---|---|
| **6,000** | **$45.95** | **$2.11** | **$7.18** | **4.5%** |
| **100,000** | **22.53** | **1.21** | **3.63** | **4.25** |
| **1,000,000** | **12.54** | **0.88** | **2.16** | **3.75** |

Many state laws hamper cities in their efforts to combat this problem, Mr. Harris emphasized. Some have unrealistic debt limits and awkward requirements for electorate approval. Small communities have had some help from the federal grant program. This provides grants to individual cities of $250,000 maximum, or 30% of the project cost, whichever is smaller. Grants-in-aid amounting to $185,000,000 have been involved in sewerage construction costing well over $1 billion. Current legislation allows only one grant per project. Proposed legislation would permit each municipality joining in a single multi-municipal sewerage project to apply for a grant for its share.

Metropolitan sewerage projects, Mr. Harris warned, run into roadblocks because of the reluctance of outlying communities to join in a metropolitan plan. Fringe communities often suspect binding agreements with a central city and prefer to "go it alone." ◄◄

AMERICAN LAFRANCE

# *Leadership*

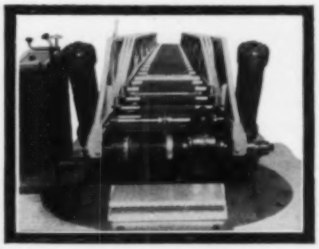


## sets new design standards for utility and performance in 900 Series aerial ladder trucks

THE 900 SERIES aerial ladder trucks have many improved features. A "wrap around" 2-piece windshield of satety plate glass provides better visibility for the driver, and increased height for weather protection. Two twin sealed beam headlights afford greater safety for night emergencies.

More and larger compartments, four enclosed for increased storage space and weather protection. Stronger and stiffer chassis frame to reduce deflection under shock loading.

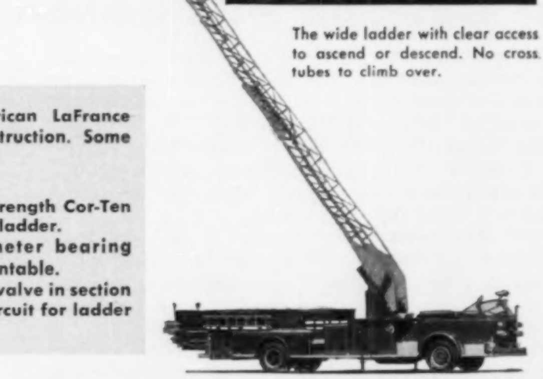
Improvements in aerial ladder construction increase the reliability and use of the aerial ladder.



The wide ladder with clear access to ascend or descend. No cross tubes to climb over.

**The Extra Value features that established American LaFrance Leadership continue in the basic design and construction. Some of these important features are:**

- **Shorter turning radius.**
- **5 man seating with separate adjustable driver's seat.**
- **Shock absorbers, both front and rear.**
- **High tensile strength Cor-Ten steel aerial ladder.**
- **65 inch diameter bearing rings for turntable.**
- **By-pass relief valve in section retracting circuit for ladder protection.**



*Everything you need to fight fire!*

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HOSE & NOZZLES
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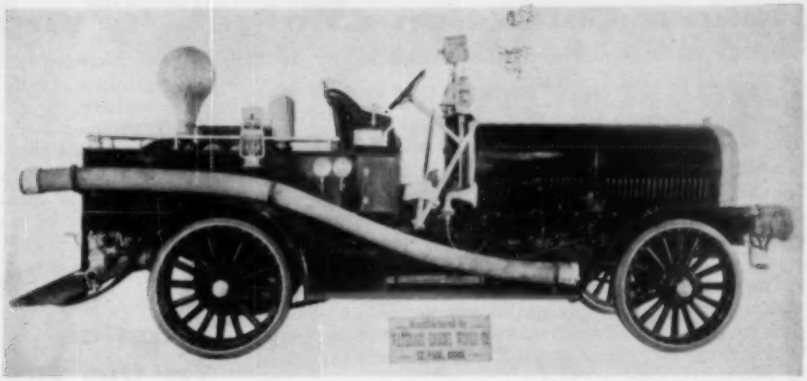


# Old Fire-Pump Builder Still at It

Waterous pumps are used by fire apparatus manufacturers; Waterous hydrants are safeguarding many cities; the Waterous Co. is celebrating its 75th anniversary.

In 1886 Waterous produced its first steam pumping engine, and in 1898 its first gasoline-powered pump (the rig remained horse- or hand-drawn). New York City, it is said, purchased its first self-propelled fire engine (shown in the picture above) from the Waterous Company in 1909.

Ironically, in 1904 fire destroyed the Waterous plant. The factory was rebuilt on the same site, and in 1917 the company moved to its present location at 80 East Fillmore Ave., St. Paul 1, Minn. Fred A. Waterous, son of Frank J. Waterous, has been with the company since 1920 and has headed it since 1935. ◄◄

# Leased Police Cars

When our police-car mileage and maintenance reached a figure which our budget could not handle, we examined the feasibility of renting cars. The city rented three cars from the Ryder System, Inc., Miami, Fla., and the total amount per car for rental was $255.10 per month for nine months and $230.13 for three months, making a total cost per car per year of $2,986.29. Each car puts on 72,000 miles per year and thus, we get a cost per mile of 4.2 cents.

But the contract specifies a re-sale value for the rented cars at the end of the 12-month period. If the re-sale price received does not equal the amount set the city must make up the deficit. If the car sells for more, as has been the experience of North Miami Beach, Fla., for instance, the city receives the difference.

We have, since that time, rented four motorcycles from the Ryder Company at a price, including transistorized radios which become the property of the city after a two-year rental period, for $120.69 per month. There was no re-sale stipulation clause in this contract.

We like the motorcycle contract even better than the passenger-car rental contract since the motorcycles do not have to realize a pre-determined amount on the re-sale market at the termination of the contract. Our city shops did not maintain the motorcycles and, therefore, we find the Ryder Company rental even more attractive.

Our cost figures on motorcycles show that the maintenance cost to the city equals 5.4 cents per mile using the average mileage of 25,000 miles per year, whereas the cost based on Ryder Company rental figures out at 5.8 cents per mile, and we are relieved of the risk and uncertainty.

The company has offered us a new contract proposal for passenger cars which eliminates the objectionable re-sale clause and is based on a six-cylinder Chevrolet Biscayne with standard gear shift. The terms of this proposal are $229.83 per month and the cost figures out about 3.75 cents per mile.

It should be noted that the other contract for cars, costing $225.10 per month, was based on an eight-cylinder Ford police special.

CARY C. BURNETT
*City Manager*
*Albany, Ga.*

## Police-Dog Program In St. Louis

Because of the success of the police dog program in St. Louis, Mo., the number of man-dog teams has been increased to twenty-two, with a stated goal of fifty. This program was started in 1958 after the Governmental Research Institute's Director accompanied Police Department officials to London to survey the use of police dogs there.

During the past year, St. Louis constructed what is considered to be the most efficient and fully-equipped dog training center in the country. This center has been in constant use, training not only police officers and dogs of the St. Louis Department, but also those from departments in St. Louis County, other Missouri cities, and other states. ◄◄

## Refuse Collection Charges in Virginia

Of 40 Virginia municipalities questioned by the Virginia Municipal League:

- **47% (19) make no special charge for refuse collection, either to residences or commercial establishments.**
- **33% (13) charge for commercial or business collections, but do not charge for residential collections.**
- **20% (8) make a special charge both to residences and commercial establishments for refuse collection.**

The study encompassed cities of 5,000 population or more. Those making charges to commercial and business houses generally provide daily collection to these areas. Frequency of residential collection was reported as follows:

| | |
|---|---|
| **Once per week** | **10** |
| **Twice per week** | **19** |
| **Variable schedule or not reported** | **3** |

The following communities reported that they charged for residential collection and listed these amounts charged:

| **Community** | **Frequency** | **Amount** |
|---|---|---|
| **Fairfax County** | **Once a week** | **$18 per year per family unit, from single and duplex dwellings only.** |
| **Fredericksburg** | **Twice weekly for 35 weeks; three times a week in summer** | **$20 per year per unit, includes can, liner and burlap bag.** |
| **Pulaski** | **Once a week** | **$0.50 per month for single family homes 1-4 rooms. $0.75 for 5 or more rooms.** |
| **Radford** | **Once a week** | **$1.50 per month.** |
| **Waynesboro** | **Once a week** | **$1.00 per month.** |

Fredericksburg sends out quarterly bills and Fairfax County bills annually as part of the tax bill. The other cities include the charge on the monthly utility bill, either water or electric.

In most cases the commercial charges are based on type and frequency of collection, and the amount collected. Also in most cases payment for commercial collection must be made in advance.

The League made this survey in the early summer of 1960. ◄◄

## Plastics

## To the Rescue

In Hollywood, Fla., the Purchasing Department is trying to lighten the burden of the refuse collectors by finding a barrel, or container, light and strong enough to make the job of carrying refuse from the householder's container to the collection truck easier. First efforts found a 55-gallon polyethylene barrel at $10 each which came close to fitting requirements. However, by the time the tops and bottoms were reinforced the cost had risen to $17 each. The barrels lasted three months.

Purchasing Agent Art Dobay located another supplier, the County Chemical Company, of North Bellmore, N. Y., which handles a 55-gallon barrel for $13.50 in large lots. The bottoms appeared to be too weak but the manufacturer has assured the city that future orders will be filled with barrels having a double thickness on the bottom.

In addition, the new plastic barrels are easy to repair. The application of an ordinary soldering iron effectively welds cracks or tears.

The plastic barrels are being tested when the daily work load is the heaviest. In Hollywood the total tonnage of refuse being picked up each week serves as a barometer of the city's winter population. Collection tonnages this winter have been running close to 600 tons each week. The high mark for the winter was 649½ tons in a single week; this record was set in the week ending February 23rd. ◄◄

## Refuse Composting in Phoenix

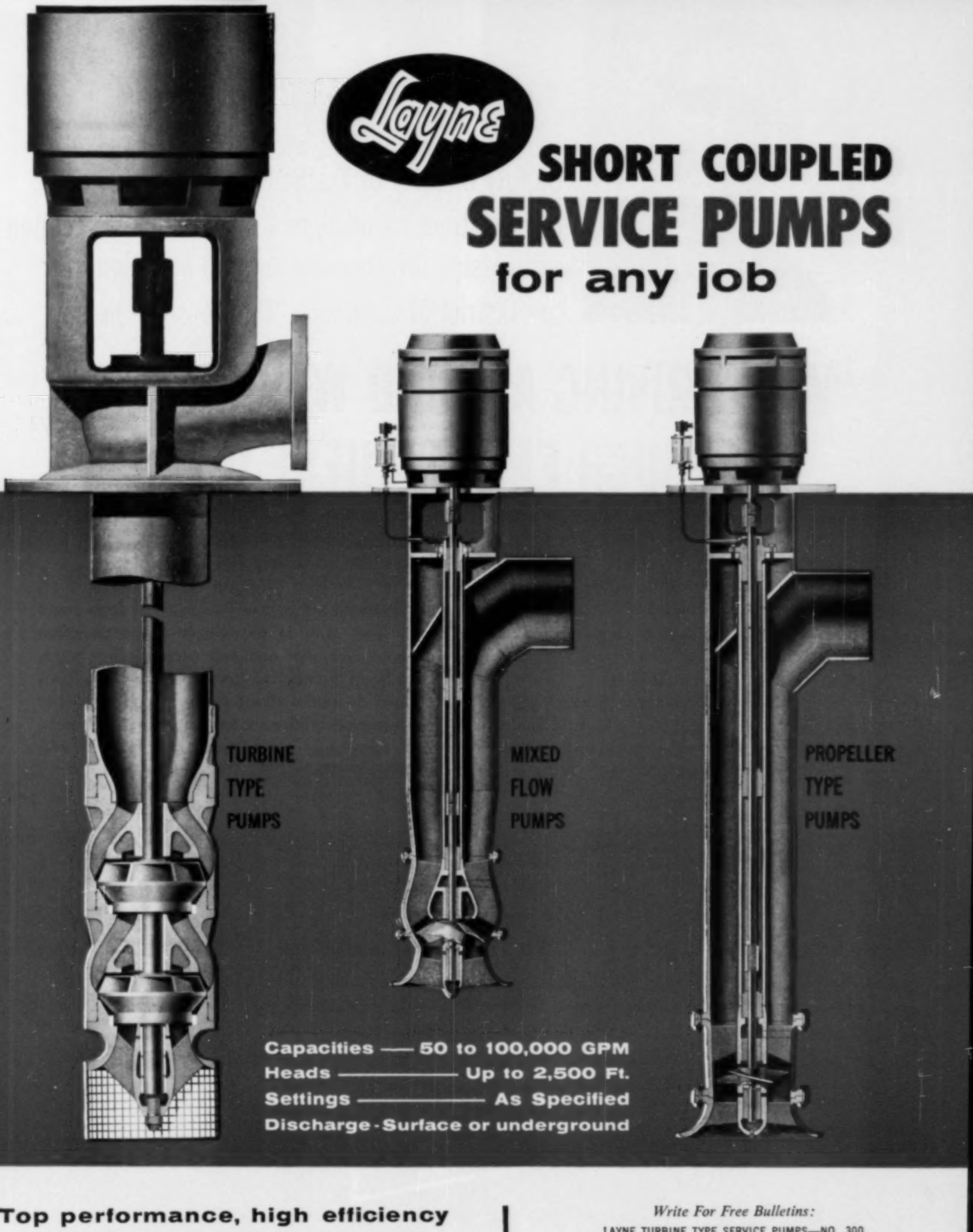
The first full-scale commercial composting plant in the United States was set up in Phoenix under a contract between the Arizona Biochemical Co. and the City of Phoenix. The contract was approved by the City Council in July. Arizona Biochemical will build the first plant on land adjoining the city's sewage treatment plant. It is to be ready within twelve months from the time the site is acquired and will have capacity of 300 tons per day. The construction of two additional plants of the same capacity at a later date is provided for in the contract.

Composting is the decomposition of refuse through bacterial action producing compost which is a soil conditioner. It is similar to peat moss in appearance and application. Arizona Biochemical, whose proposal was accepted as the best for the city, will use the "Dano" process of composting in which bacterial decomposition takes place inside a revolving cylinder. The "Dano" process has been successfully used in full-scale plants in cities in Greece, Italy, Denmark, Norway, Finland, and several other European countries for many years.

Once the three Phoenix plants are in full operation, the city will be able to discontinue its landfill operations except for bulky items which cannot pass through the composting process. The contract calls for the city to pay a fixed fee for each ton of refuse delivered to the compost plant by the city with a minimum annual payment of $103,750. However, beginning with the 13th month of plant operation, the city is to receive a percentage of the gross sales with a specified minimum amount. Operating costs of the present landfill are expected to total over $240,000 during 1960-61. The city's payment to Arizona Biochemical, less its share of the gross sales, should eventually be less than the costs of continuing expensive landfill operations and of long hauls to distant disposal sites. ◄◄

Layne

# SHORT COUPLED SERVICE PUMPS for any job



**Capacities — 50 to 100,000 GPM**
**Heads — Up to 2,500 Ft.**
**Settings — As Specified**
**Discharge - Surface or underground**

**Top performance, high efficiency and less maintenance** are factors which influence the selection of a short coupled pump. Layne Vertical Service Pumps fulfill these requirements and offer the advantages of lower installation and operation costs, low submergence requirements, simple alignment, no priming and less floor space demands. For any short coupled pumping job . . . specify Layne.

*Write For Free Bulletins:*
LAYNE TURBINE TYPE SERVICE PUMPS—NO. 300
LAYNE PROPELLER AND MIXED FLOW PUMPS—NO. 350

World's Largest Layne Water Developers

**LAYNE & BOWLER, INC., MEMPHIS**
*General Offices and Factory, Memphis 8, Tenn.*
LAYNE ASSOCIATE COMPANIES THROUGHOUT THE WORLD
SALES REPRESENTATIVES IN MAJOR CITIES

Deputy Director of Traffic Francis E. Twiss credits street name signs of "Scotchlite" Sheeting with easing driver confusion and irritation in the District of Columbia. "One reason," he says...

# "WHY DRIVING AROUND WASHINGTON IS MUCH EASIER THESE DAYS"

"Our area," says the District of Columbia's Deputy Director of Traffic, Francis E. Twiss, "probably has more visitors and strangers per square mile than any other city in the country. It is imperative that all these people move along our streets without slowing traffic, especially during peak periods.

"We think that our street name signs, because of the material and combination of colors used, are of considerable service in guiding our many visitors, both day and night, in easing driver confusion—and irritation. Our guests like what they see."

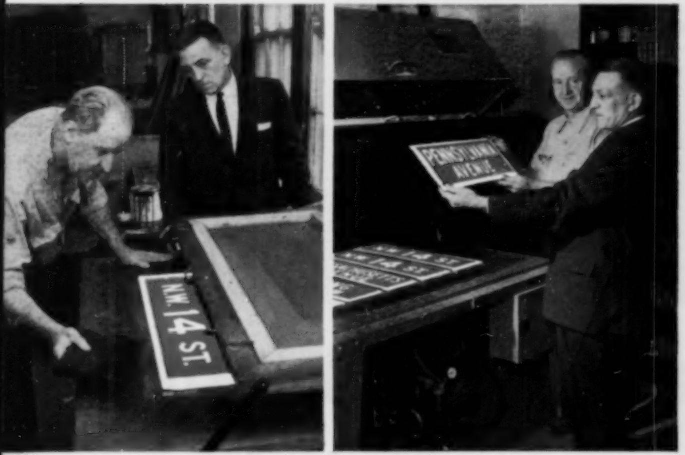
The District's program of reflectorizing all street name signs was inaugurated four years ago. The plan is to complete the program on a replacement and new construction basis. Sign Shop Supervisor Joseph Parlon says, "It's so easy to make street name signs, and other reflectorized traffic control signs, with 'Scotchlite' Sheeting, our production is fast and extremely efficient."

FIRST ST. N.E.
CONSTITUTION AVENUE

TURN 7-9 AM 4-6 PM
N.W. 21 ST.
VIRGINIA AVENUE N.W.
LEFT TURN 2 LANES AT N.Y. AVE 7-9:30 AM
NO LEFT TURN

**A WELCOME SIGHT** in Washington, D.C., and over 450 other communities, street name signs of "Scotchlite" Sheeting are a public service the public appreciates.

**SIGNS THAT STAND OUT** at night, reflecting brightly in headlight beams, never leave motorists in the dark.


N.W. 14 ST.
PENNSYLVANIA AVENUE

**JOSEPH PARLON,** Sign Shop Supervisor, watches George Harvey silk screen another perfect sign face of "Scotchlite" Sheeting. Mr. Harvey recently won a traffic award for the design and development of the vacuum screening table he is using. *Right photo:* The final step in the making of modern signs for the District of Columbia is the quick, permanent bonding of reflective sheeting to its backing in a "Scotchlite" Vacuum Applicator.

***TAKE A LOOK** at your street name signs. Are they a credit to you and your community? If there's any doubt, see your 3M Representative or write Dept. RBK-41, The 3M Company, St. Paul 6, Minnesota.*

PARKWAY DRIVE N.W.
CONSTITUTION AVENUE

**SCOTCHLITE®**
BRAND
**REFLECTIVE SHEETING**

MINNESOTA MINING AND MANUFACTURING COMPANY
...WHERE RESEARCH IS THE KEY TO TOMORROW
3M COMPANY

"SCOTCHLITE" IS A REGISTERED TRADEMARK OF THE 3M COMPANY

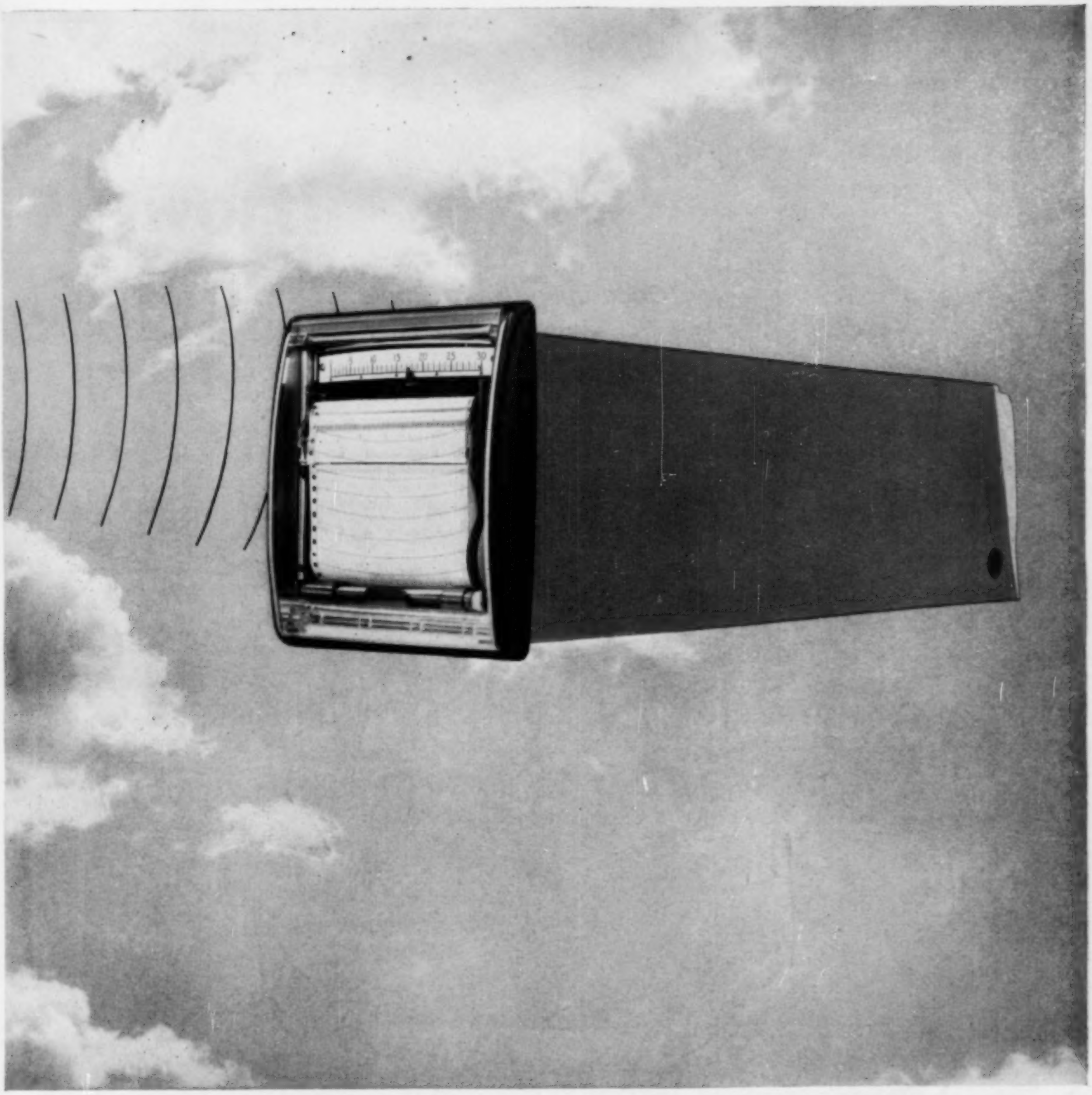
# Foxboro takes the trouble out of telemetering

# new, 2-second cycle, all-electronic eliminates mercury switches...

A giant step forward in the science of telemetering measured variables — this is Foxboro's new telemetering system.

Completely electronic, the system abandons earlier mechanical means of producing a pulse-duration signal. Dry reed switches replace troublesome mercury switches . . . a photo-diode switch replaces the mechanical cam switch. There are no synchronization problems . . . no vacuum tubes . . . no periodic maintenance.

Standard impulse-duration cycle on the new Foxboro telemetering system is 2 seconds — 4 times as fast as any other standard system. The signal can be carried over any



# telemetering system makes maintenance "plug-in simple"

transmission medium. Modular construction makes servicing easy as "plugging-in" a new component.

This is the telemetering system all industry has been asking for. For full details, write for Bulletin 17-12. Or better yet, ask your Foxboro Field Engineer for the complete story. The Foxboro Company, 954 Neponset Avenue, Foxboro, Mass.

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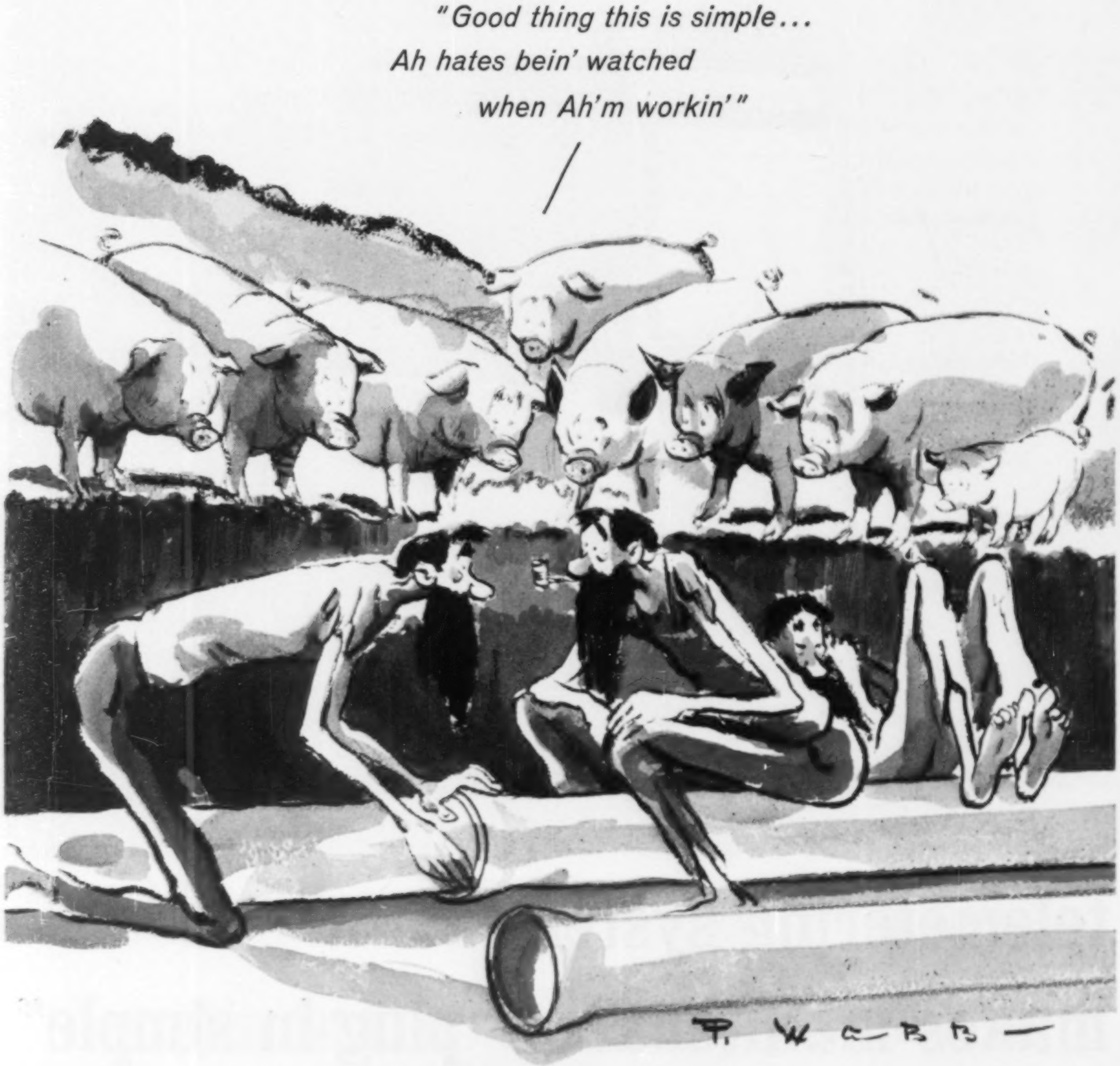
REG. U. S. PAT. OFF.

*Reg. U.S. Pat. Off.


"Good thing this is simple... Ah hates bein' watched when Ah'm workin'"

U.S. cast iron PIPE FOR WATER, SEWERAGE AND

# worth looking into!

Fact! Whenever . . . wherever Tyton Joint® pipe goes into the ground it wins more than its share of attention.

And why not? Tyton's so simple . . . so easy to assemble . . . it's a joy to watch. Only one accessory needed—a rubber gasket. No bell holes. No nuts, bolts or caulking equipment. Reduces weather worries too . . . Tyton can be laid in rain or wet trench.

Simple, speedy, sure, Tyton Joint* pipe is one big answer to today's problem of steadily rising costs. Get the money, time and labor-saving facts today. Call or write.

**U.S. PIPE AND FOUNDRY COMPANY**
General Office: Birmingham 2, Alabama

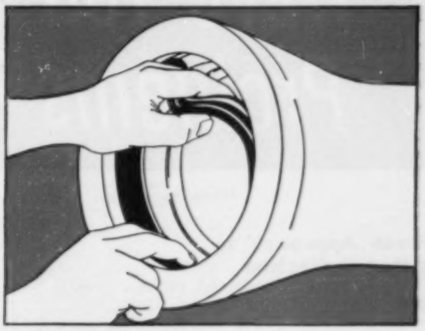
A Wholly Integrated Producer from Mines and Blast Furnaces to Finished Pipe.

*U. S. Patent No. 2,953,398

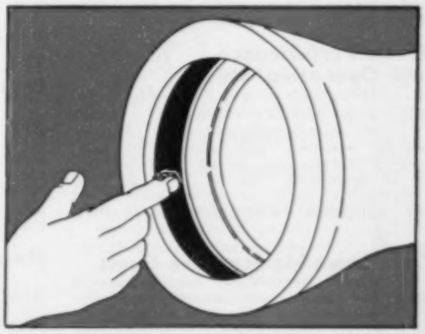
INDUSTRIAL SERVICE ® CAST IRON

# TYTON®

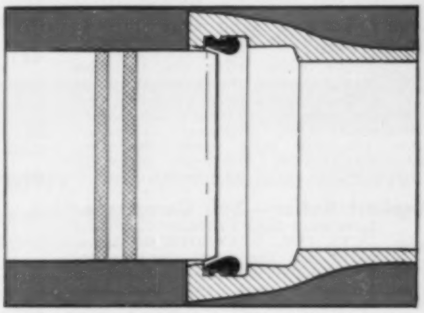
## ONLY FOUR SIMPLE ACTIONS



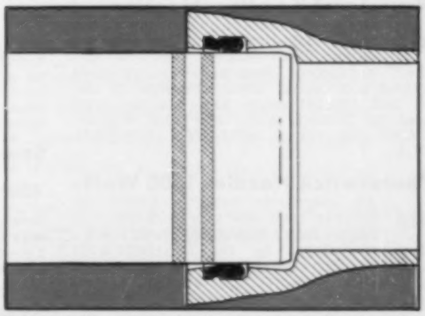
Insert gasket with groove over bead in gasket seat . . . a simple hand operation.



Wipe film of Tyton Joint® lubricant over inside of gasket. Your receiving pipe is ready.



Insert plain end of entering pipe until it touches gasket. Note two painted stripes on end.



Push entering pipe until the first painted stripe disappears and the second stripe is approximately flush with bell face. The joint is sealed . . . bottle-tight, permanently! The job's done . . . . fast, efficiently, economically. Could anything be simpler?

# Have You Problems?

## These Free Booklets Will Help You

**Check over these listings which will provide you with important up-to-date information on equipment and services that will assist you in solving municipal problems.**

Write to address given or circle corresponding number on free post card on page 55.

### Fresh Approach to Litter Collection

**406** A 4-page illustrated bulletin thoroughly details two vacuum-type pavement cleaners, pointing out how they provide better pavement sanitation, cutting costs up to 75%. Ask TARRANT MFG. CO., 27-29 JUMEL PLACE, SARATOGA SPRINGS, N. Y., about the "City Slicker" and "Gutter Vac."

### Truck Performance and Operating Study

**407** Municipalities will find useful a 60-page brochure containing a series of fully-documented case histories on the economy and general performance of Volkswagen trucks in typical use in 15 industries. For a copy of "The Owner's Viewpoint," write VOLKSWAGEN OF AMERICA, ENGLEWOOD CLIFFS, N. J.

### Cuts Lawn Maintenance Costs

**408** These triple-blade riding mowers cut clean, cut smooth, minimize windrowing, trim close to trees and obstructions. Ground speed is independent to blade speed and attachments give unmatched versatility. For literature, write PENNINGTON MFG. CO., ADDISON, ILL.

### Can't Take a Line Out of Service?

**409** That's when Style 126 Bell-Pack repair sleeves prove themselves by taking on breaks and leaks in cast iron pipe, making split bells and broken mechanical joints leakproof in record time. For full facts, write DRESSER MANUFACTURING DIVISION, DRESSER INDUSTRIES, INC., BRADFORD, PA.

### Asphalt Roller—Soil Compactor

**410** Literature from VIBRO-PLUS PRODUCTS, INC., STANHOPE, N. J., reports that the CL-21 self-propelled vibratory asphalt roller-soil compactor is ideal for patch work, rolls flush with curb, moves from job to job on any truck tailgate, has the effect of an 8-10 ton tandem.

### New Trash-Loading Machine

**411** Designed specifically to meet the trash collection problems facing cities, Trash-Master uses "off-the-shelf" equipment combined with patented swivel and bucket units. It's now in use in two Florida cities and can be operated by 2 men. Write JUPITER EQUIPMENT CO., 78 E. 6TH ST., HIALEAH, FLA.

### Photoswitch Handles 1500 Watts

**412** An electronic switch capable of turning 1500 watts of incandescent lamp load on-at-dusk and off-at-dawn is offered by the LIGHTGUARD ELECTRONIC MFG. CO., 1213 SAINT EMANUEL, HOUSTON 3, TEXAS. Literature available on request.

### Large-Capacity Submersibles

**413** *Bulletin* B1400, just issued by SUMO PUMPS, INC., BROWN HOUSE RD., STAMFORD, CONN., reports on a line of high-capacity 3550 rpm and 1750 rpm submersible pumps for municipal water supply systems. Capacities are up to 600 gpm and 3400 gpm, respectively.

### Complete Water Services

**414** *Bulletin* 10 gives general facts and information on water well systems, water pumps, well drilling and allied water services and equipment for municipalities. It lists additional bulletins for detailed information on well drilling, well casing and screen, pumps, chemical treatment of water wells and water treatment. Write LAYNE & BOWLER, INC., MEMPHIS 8, TENN.

### The Story of Concrete Pressure Pipe

**415** This 24-page booklet explains the principle of prestressing, how prestressed pipe is manufactured, describes procedures for installing and tapping pressure pipe and gives facts about its principal uses. Write PRICE BROTHERS CO., 1932 E. MONUMENT AVE., DAYTON 1, OHIO.

### How to Lay Out a Parking Lot

**416** This is the title of the 1961 edition of a comprehensive 40-page manual which tells how to avoid pitfalls in planning parking lot facilities. It's available from WESTERN INDUSTRIES, INC., PARKING GATE DIV., 2742 W. 36TH PLACE, CHICAGO 22, ILL.

### Municipal Sanitation Equipment

**417** The Elgin-Leach line of sanitation equipment includes refuse collection units of several types and sizes, mechanical and hydraulic-type street sweepers, and an eductor that cleans catch basins, manholes and sludge pits. Write ELGIN CORP., 222 W. ADAMS ST., CHICAGO 6, ILL.

### Sturdy Litter Baskets

**418** Current catalog literature from DESIGNERS METAL DIVISION OF SOUTHERN ELECTRIC, INC., 8701 S. GREENWOOD AVE., CHICAGO 19, ILL., gives full facts and specifications for Demcor E-X-P-A-N-D-E-D metal litter baskets, low-cost, durable units that help keep cities clean.

### Shade Tree Sprayers

**419** JOHN BEAN DIV., FOOD MACHINERY & CHEMICAL CORP., LANSING, MICH., has designed its new Rotomist Model 91 and 301 to fill the specific needs of municipalities for large as well as medium-capacity shade tree sprayers. The 301 is said to replace six men using spray guns from a high-pressure spray rig.

### Sewage Odors Controlled

**420** Solvex Concentrate, recommended for use in sewage disposal plants and sludge beds, storm sewers, man holes, catch basins, drainage ditches, etc., acts in three ways to control odors. Literature available from NATIONAL CHEMSEARCH CORP., 2417 COMMERCE, DALLAS, TEXAS gives details.

### Synchronous Motors

**421** *Bulletin* 1100-PRD-253 describes a line of heavy-duty motors that convert electrical power to mechanical power at low cost. Ratings are 600 hp and up, speeds from 500-1800 rpm, at 0.8 or 1.0 power factor, 60-50 cycles and at standard voltages. Write ELECTRIC MACHINERY MFG. CO., MINNEAPOLIS 13, MINN.

### Stops Rust, Cuts Maintenance Costs

**422** Latest catalog from RUST-OLEUM CORP., 2984 OAKTON ST., EVANSTON, ILL., gives full facts on a new Color Horizons system and specialized Rust-Oleum systems. Color charts and applications included. Also available is a free test sample of 769 Damp-Proof Red Primer.

### New Traffic Guide System

**423** AMERICAN-MARIETTA, ADHESIVE, RESIN AND CHEMICAL DIVISION, 3400 13TH AVE., S.W., SEATTLE 4, WASH., has prepared a 16-page bulletin which points out the applications and advantages of its Lite-Lane Traffic Guide System. Request S/S Bulletin 1601-1-1.

### Earth Augers

**424** Latest catalog offered by MODERN PRODUCTS, INC., DEPT. AM, P. O. BOX 344, EXETER, NEBR., presents information on both track-mounted power model and hand-held earth augurs, which drill with accuracy and cut costs of drilling under lawns, shrubbery, streets, walks.

### Controllers for Water

**425** . . . and sewage treatment plants are covered in detail in the new 56-page Catalog C-15-2a, which thoroughly describes the complete line of ElectroniK controllers (pneumatic and electric) manufactured by INDUSTRIAL DIV., MINNEAPOLIS-HONEYWELL REGULATOR CO., WAYNE & WINDRIM AVES., PHILADELPHIA 44, PA.

### Winco's New Engine Generators

**426** . . . are equipped for remote starting, will carry such loads as a 5-hp motor plus 600 watts of simultaneous restive load. They're rated at 12,000 watts a.c. and will produce ample power for standby, mobile and portable power needs. Write WINCHARGER CORP., EAST 7TH & DIVISION STS., SIOUX CITY 2, IA.

### Air Valves for Pipelines

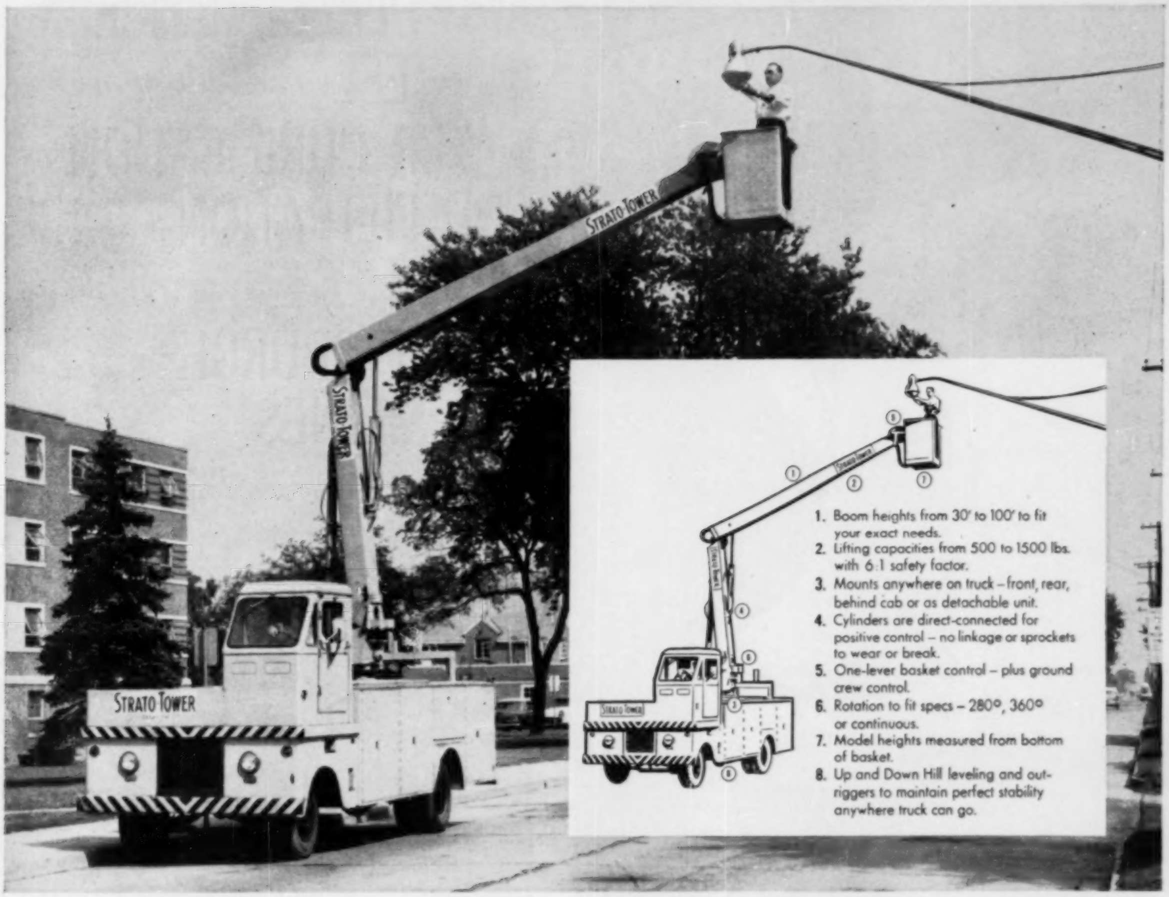
**427** Operation, construction, application and performance of the Crispin line of air valves, used to control the amount of air in liquid pipelines, is given in a comprehensive 28-page catalog published by MULTIPLEX MFG. CO., DEPT. E, BERWICK, PA. Services using these products include filtration plants, sewage disposal plants, pumping stations, reservoirs.

### Outdoor Light Turns Itself On and Off

**428** A new luminaire for parking lots and working areas turns itself "on" at night and "off" in the daytime and uses an Endural glass bowl refractor with optical prisms on inside and outside surfaces. Shapes and location of the prisms assure uniform illumination. The fixture takes incandescent or mercury-vapor lamps. For further details on luminaire No. 442, write HOLOPHANE CO., INC., 342 MADISON AVE., N. Y.

*(See page 47 for more Bulletins)*

# OTTAWA



1. Boom heights from 30' to 100' to fit your exact needs.
2. Lifting capacities from 500 to 1500 lbs. with 6:1 safety factor.
3. Mounts anywhere on truck – front, rear, behind cab or as detachable unit.
4. Cylinders are direct-connected for positive control – no linkage or sprockets to wear or break.
5. One-lever basket control – plus ground crew control.
6. Rotation to fit specs – 280°, 360° or continuous.
7. Model heights measured from bottom of basket.
8. Up and Down Hill leveling and outriggers to maintain perfect stability anywhere truck can go.

## up to 100' extension to your arm —

## STRATO-TOWER

With a simple flick of the exclusive Strato-Tower single-lever control, work crews position themselves in the exact elevated spot they need. They do it safely, too...Strato-Tower's exclusive Up and Down Hill leveling lets the crew work *anywhere* the truck can go. Hydraulic outriggers insure stability—fiberglass booms and buckets isolate crews from high voltage — insulated booms protect on low voltage lines. And, Strato-Towers are structurally built with a six to one safety factor — an extra margin of safety.

See your Ottawa Distributor or send the coupon for full details on the Ottawa Strato-Tower. Equipment Division, Young Spring & Wire Corporation, Bowling Green, Ohio.

OTHER EQUIPMENT DIVISION PRODUCTS

**OTTAWA**

- HYDRA-HAMMER — Pavement Breaker and Compactor
- MARAUDER — Self-propelled Backhoe and Loader
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- POWER CRANES — 7000 lb. lifting capacity
- POWER GATES® — 800 to 5000 lb. capacity
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**SEND ME MORE FACTS ON THE OTTAWA STRATO-TOWER**

☐ Complete descriptive literature
☐ Specifications of the.........-foot boom
☐ Name of my nearest Ottawa Dealer

Name............................................................
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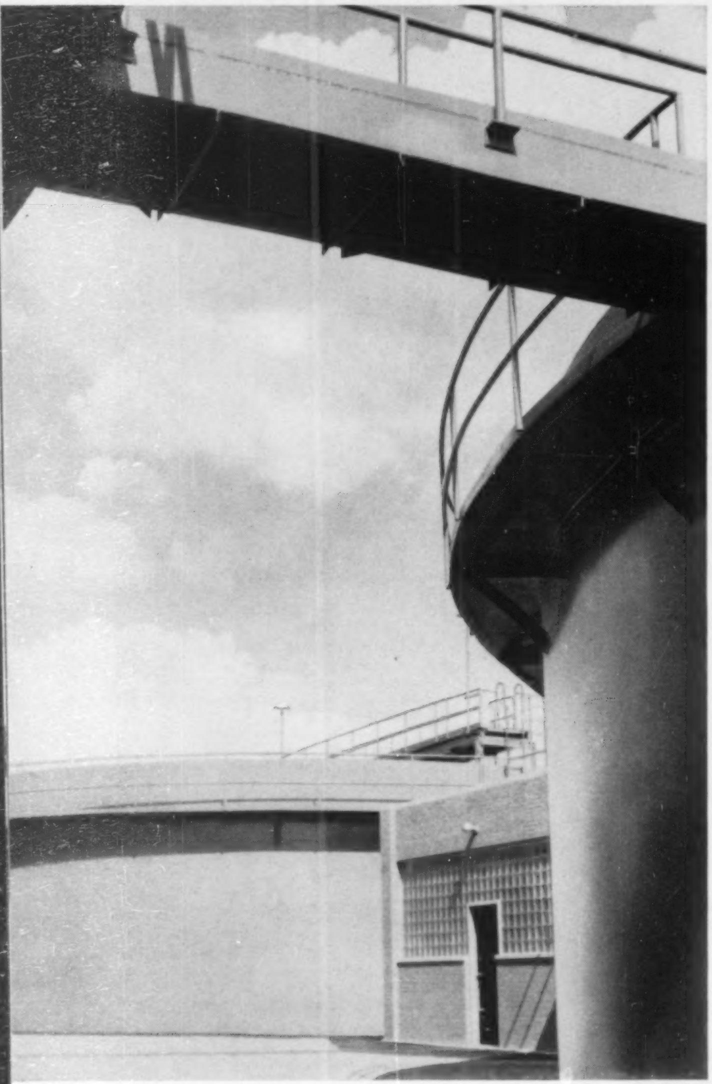
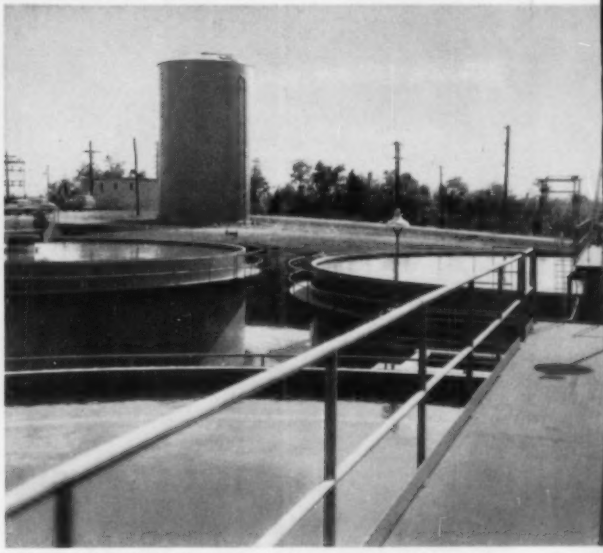
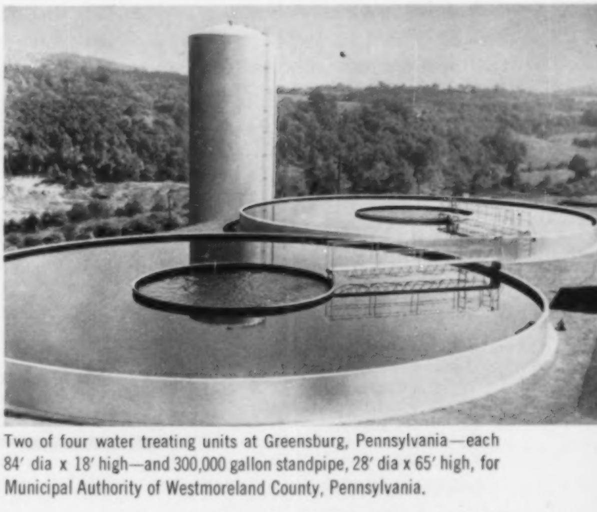
# CRAFTSMANSHIP AND PERFORMANCE IN STEEL WATER PURIFICATION AND FILTRATION FACILITIES BY PITTSBURGH-DES MOINES

Two of four purification units at Lexington, Kentucky—each 69′ 8″ dia x 17′ 9″ high—for American Water Works Service Co.





Lexington, Kentucky installation with 200,000 gallon standpipe, 28′ dia x 45′ high



Two of four water treating units at Greensburg, Pennsylvania—each 84′ dia x 18′ high—and 300,000 gallon standpipe, 28′ dia x 65′ high, for Municipal Authority of Westmoreland County, Pennsylvania.

The projects pictured typify the long experience of PDM in serving dependably the waterworks field. The same care and skill in construction that have made PDM elevated steel tanks, standpipes and reservoirs the standard of value and performance wherever water is stored, apply equally to the long-lived steel structures PDM builds for modern water filtration and purification. • When water handling is your problem, you'll find the best solution begins with a call to Pittsburgh-Des Moines!

PDM
ELEVATED STEEL TANKS

**Pittsburgh-Des Moines Steel Company**

Plants at PITTSBURGH, WARREN, BRISTOL, PA. • BALTIMORE • BIRMINGHAM • DES MOINES
PROVO, UTAH • CASPER, WYO. • SANTA CLARA, FRESNO, STOCKTON, CALIF.

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DALLAS (1)...Suite 1703, Southland Center
DENVER (2).....323 Railway Exchange Bldg.
SEATTLE (1)...............500 Wall Street

## MONEY SAVING *catalogs*

**Write to address given or circle corresponding number on free post card on page 55.**

### Combats Objectionable Odors

**429** An odor-control program built around Sanfax DX-85 stops odors at the source. SANFAX CORP., P. O. BOX 604, ATLANTA, GA. will provide facts on the use of DX-85 in sewage disposal plants, incinerator plants, city dumps, manholes, lift stations.

### Improved Volumetric Feeder

**430** Water and sewage works men will want to find out about this volumetric feeder, which feeds 3 to 3,000 pounds of dry materials per minute with close to gravimetric accuracy. WALLACE & TIERNAN INC., 25 MAIN ST., BELLEVILLE 9, N. J. will supply full details.

### Picks Up Wet or Dry Litter

**431** When Litterlift is on the job, grass clippings, paper, leaves, bottles, cans and other litter disappear into a dumping hopper in a one-man operation and in a whisk. Grass, park, playground and beach areas are left efficiently clean. Write LITTERLIFT CORP., 202 N. MAHAFEE, OLATHE, KANS.

### Speeds Overhead Maintenance

**432** With the new all-hydraulic Squirt Boom on the job, traffic signal and street light maintenance and other aerial tasks get done more safely, more economically and more quickly. Write HOLAN CORP., 4100 W. 150TH ST., CLEVELAND 35, OHIO.

### Loaders, Road and Street Broom

**433** Bulletins from LULL ENGINEERING CO., 3045 HIGHWAY 13, ST. PAUL 11, MINN. give features, specifications and application information on Models 42 and 44 four-wheel drive loaders and on the Model SP-2 self-powered road and street broom with reversible broom action.

### Sewer, Pipe Cleaning Equipment

**434** New 4-page catalog of "Powerized Sewer and Pipe Cleaning Equipment" illustrates and describes the complete line of O'BRIEN MFG. CO., 5632 NORTHWEST HWY., CHICAGO 46, ILL., power rodders, bucket machines, cable machines, power rod drives and accessories for municipal use.

### Secondary Road Improvement

**435** Information on a new, balanced program of secondary road improvement is given in the booklet, "A Program for Progressive Improvement of Secondary Roads," which is available from COLUMBIA CALCIUM CHLORIDE, ONE GATEWAY CENTER, PITTSBURGH 22, PA.

### Helps Waste Treatment Along

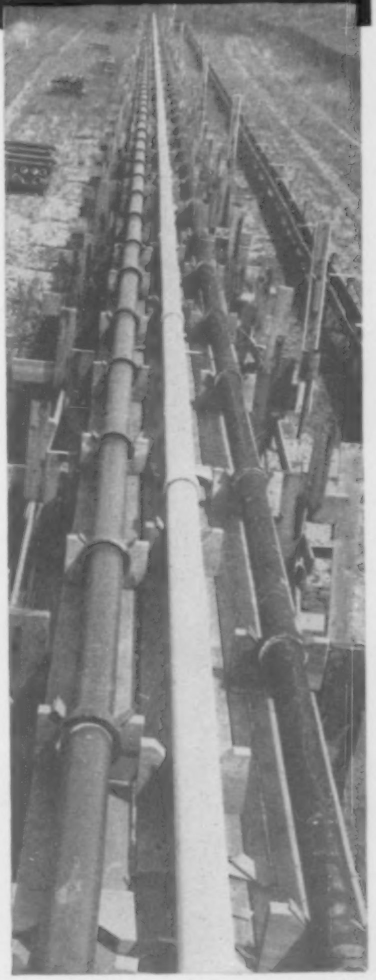
**436** Bionetic accelerates sludge digestion, cleans collection system lines, controls odors, breaks down lubricating oils that kill digestors. To learn how convenient and economical it is to use, request literature from RELIANCE CHEMICALS CORP., BIONETIC DIV., P. O. BOX 19343, HOUSTON 24, TEX.

### Adds Actuated Transmitter to Telemetering Line

**437** The new Chronoflo Bellows actuated flow transmitter is for pressure-operated explosion-proof remote flow telemetering service in sewage and waste treatment plants or in pipeline distribution of gas or other hazardous materials. *Reference* No. 231-15.201-1 gives details; write B-I-F INDUSTRIES, 345 HARRIS AVE., PROVIDENCE, R. I.

***(See page 48 for more Bulletins)***

EXTENSIVE TESTS ESTABLISH VALUES for MANNING's n



**There has been considerable loose talk lately about "new" values for Manning's *n* when figuring flow coefficients for sewer lines. Manufacturers of one substitute material for lifetime Vitrified Clay Pipe say their pipe has a lower *n* factor, allowing flatter grades or smaller diameter pipe.**

Independent tests show that this is not true.

**For example, the new "Design and Construction of Sanitary and Storm Sewers"* manual contains a table entitled "Suggested Values of *n* for Manning's Formula." According to this table in the *new standard* for sanitary engineers, the range of values for *n* is *exactly the same* for lifetime Vitrified Clay Pipe and all normally used substitutes for this material.**

Extensive tests just completed by independent researchers demonstrated this same point, as do other independent studies quoted at length in the manual.

**Remember, there is no substitute for research. And there is no substitute for lifetime Vitrified Clay Pipe in your sewer lines.**

**Prepared by a Joint Committee of the Water Pollution Control Federation and the American Society of Civil Engineers, 1960*

COMPRESSION SEALED, VITRIFIED
CLAY IMPERVIOUS PIPE
THE STANDARD in SANITARY SEWERS

NATIONAL CLAY PIPE MANUFACTURERS, INC.
1028 Connecticut Ave., Washington, D. C.

Please send me full details on the new factory-made compression joints on Clay Pipe.

(name)
(company)
(street address)
(city and state)
B-3C23 AC

**NATIONAL CLAY PIPE MANUFACTURERS, INC.**
*1028 Connecticut Avenue Washington 6, D. C.*

## FREE catalogs

**You will find of interest**

**Write to address given or circle corresponding number on free post card on page 55.**

### Low-Priced Pickup Truck

**438** A new, wide box is one among several new features of the 1961 Champ, a rugged, full rated multi-purpose vehicle powered by a new 110-hp 6-cylinder engine or V-8 power plants of 180- and 210-hp. Literature available from STUDEBAKER-PACKARD CORP., SOUTH BEND, IND.

### Street Name Signs

**439** In *Brochure* AC you'll find valuable information on Lifetime cast aluminum street signs with Prismo reflectorized letters that assure round-the-clock visibility. For copy, write LAKE SHORE MARKERS INC., 654 W. 19TH ST., BOX 59, ERIE, PA.

### Maintains Asphalt Highways

**440** This Repaver combines all processes necessary to repair any defect in an asphalt highway and then resurface the area with a new 50-pound hot mix seal coat. For literature, write CUTLER ENGINEERING CO., 5435 W. 63RD ST., CHICAGO 38, ILL.

### Automatic Traffic Marker

**441** Movatron enables traffic patterns to be changed quickly, safely, and at desired intervals. Control can be by time-clock, radar, radio or switch. Details available from NATIONWIDE TRAFFIC ENGINEERING PRODUCTS CORP., 2535 MT. CARMEL AVE., GLENSIDE, PA.

### For Better Mosquito Control

**442** AMERICAN CYANAMID CO., AGRICULTURAL DIV., NEW YORK 20, N. Y., will provide, on request, detailed information on area mosquito control with melathion-Lethane, which controls larvae and adults and resistant strains.

### Water Meter Catalog

**443** *Bulletin* 58 will acquaint you with the full line and design features of American bronze water meters, which virtually have all the requisites to meet every kind of water chemistry. For a copy, write BUFFALO METER CO., DEPT. AC, 2917 MAIN ST., BUFFALO 14, N. Y.

### Voting Machines

**444** These machines make voting procedure more convenient, increase the speed and accuracy of tabulation, reduce confusion. Literature is available from AUTOMATIC VOTING MACHINE, division of ROCKWELL MFG. CO., JAMESTOWN, N. Y.

### Portable Drilling Power

**445** A lightweight motor drill, self-contained with gasoline engine that drills 50-60 feet of hole on 2 quarts of fuel, drills in any position up to 45° and is ideal for on-the-spot drilling. Full facts will be provided by ATLAS COPCO., DEPT. AC-7, 545 FIFTH AVE., NEW YORK 17, N. Y.

### Submersible Dewatering Pump

**446** New 8-page bulletin, *Form* 1-VS-11, contains specifications, performance, cross-section drawing, application and product pictures and other general information on the Model 3VS1, a 3-inch electric motor driven submersible dewatering pump. Write THE GORMAN-RUPP CO., 305 BOWMAN ST., MANSFIELD, OHIO.

### Noiseless Manhole Covers

**447** These manhole covers sit firmly on their corner lugs, never rattle or clatter even under the heaviest traffic. They're a National Noise Abatement Council Winner. For engineering details, write THE SILENT KNIGHT CO., 1614 N. DIXON CIRCLE, CINCINNATI 24, OHIO.

### All-Around Deodorant

**448** Dense, durable Rounds are fragrant deodorant discs designed for laborless use in urinals, garbage pails, bowls, lockers, closets. THE C. B. DOLGE CO., WESTPORT, CONN. will send descriptive literature on request.

### Maintenance Distributor

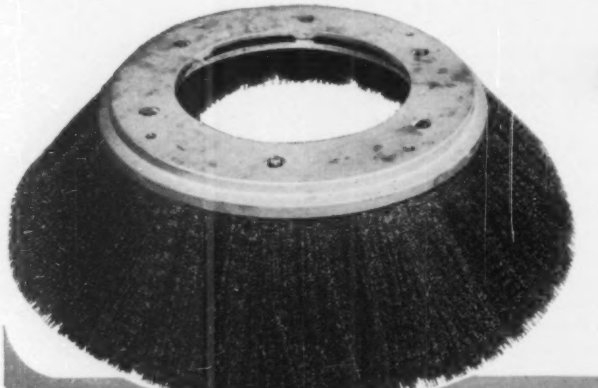
**449** Working fast, well ahead of the gravel gang, the Model S-J maintenance distributor handles asphalt or tar for patching, sealing, resurfacing, crack filling, or surfacing dirt or gravel roads. Write STANDARD STEEL WORKS, INC., NORTH KANSAS CITY, MO.

### Faster Mowing at Less Cost

**450** There's an SMC Mowal for just about any municipal mowing job—parks, playgrounds, right-of-ways. Performance data and specifications for all models can be obtained from S.M.C. MOWAL DIVISION ENGLER MFG. CORP., 4408 CENTER, HOUSTON, TEXAS.

### Reduces Evaporation Losses from Open Water Reservoirs

**451** M. MICHEL AND CO., INC., 90 BROAD ST., NEW YORK 4, N. Y., has prepared a booklet on Aqualoc NX, the protective monomolecular film that cuts evaporation loss from open reservoirs by an average of 30%, at low cost, and without affecting use or potability. Request "The Millionth of an Inch That Saves a Million Gallons of Water."

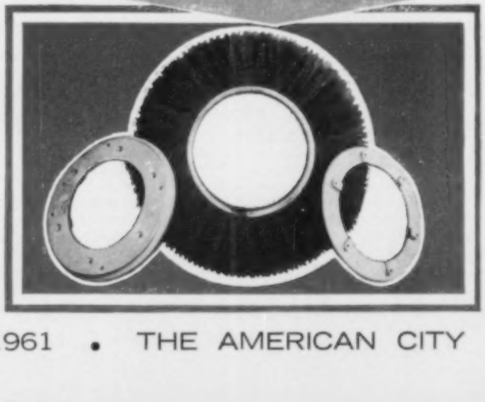


**DO IN 10 MINUTES WHAT USED TO TAKE HOURS**

**USE...**

**DANLINE PREMADE GUTTER BROOMS!**

59-33



**Only with Danline Premade Gutter Brooms can you strip and refill worn brush sections in minutes — *instead of hours!* Unique construction of Danline housing holds complete gutter broom in one premade section. Remove only 6 bolts, insert new section, fasten bolts — you're ready to resume sweeping. Factory fabrication insures proper balance of brush, eliminates shimmy. Easy! Simple! Economical! Write now for facts and illustrated literature.**

***Leadership Proved Through Performance!***

NEWARK

**NEWARK BRUSH COMPANY**
260 MICHIGAN AVENUE
KENILWORTH, NEW JERSEY

## CATALOGS *for Improved Municipal Services*

Write to address given or circle corresponding number on free post card on page 55.

### Counts Vehicles, Regulates Lights

**452** Traffic and signal engineers will find the Traffitrol Detector Model D-101 an effective engineering device which uses infra-red rays to detect and count vehicular traffic. For full facts, write HEILAND DIVISION, MINNEAPOLIS-HONEYWELL, 5200 EAST EVANS AVE., DENVER 22, COLO.

### They Stripe Clean, Fast, Sharp

**453** Current catalog literature from M-B CORP., DEPT. AC, NEW HOLSTEIN, WIS., will provide up-to-date information on the complete line of M-B traffic line markers with paint capacities from 10 to 750 gallons.

### Rotary Mower

**454** Designed to mount underneath the 9-hp Model S-23 Speedex tractor, this new rotary cuts a full 44 inches and follows ground contours closely and prevents scalping. Detailed information available from JERRY STOWE, SALES MGR., SPEEDEX TRACTOR CO., RAVENNA, OHIO.

### Davit-Style Lighting Standards

**455** PFAFF & KENDALL, NEWARK, N. J., has just issued a new 12-page catalog of davit-style standards which support the standard incandescent and mercury vapor luminaires, including the new, larger and heavier mercury vapor and fluorescent luminaires. Classification is by mounting height and by arm extension.

### Packaged Pump Station for Sewage

**456** Is yours a growing community? Then you'll want to review *Catalog* No. TQ, which gives complete information on the new, rectangular TEX-QUAD packaged sewage pump station. Write TEX-VIT MFG. CO., P. O. BOX 117, MINERAL WELLS, TEXAS.

### Cold Applied Protective Coatings

**457** *Pamphlet* T-197-1 describes a primer to end undercutting; *Pamphlet* T-197-2, a "modified coal tar emulsion coating for multi-purpose protection;" *Pamphlet* T-197-3, a heavy-bodied emulsion material which combines coal tar protection with adhesive properties. Available from KOPPERS CO., TAR PRODUCTS DIV., PITTSBURGH 19, PA.

### It's Powerful, Precise

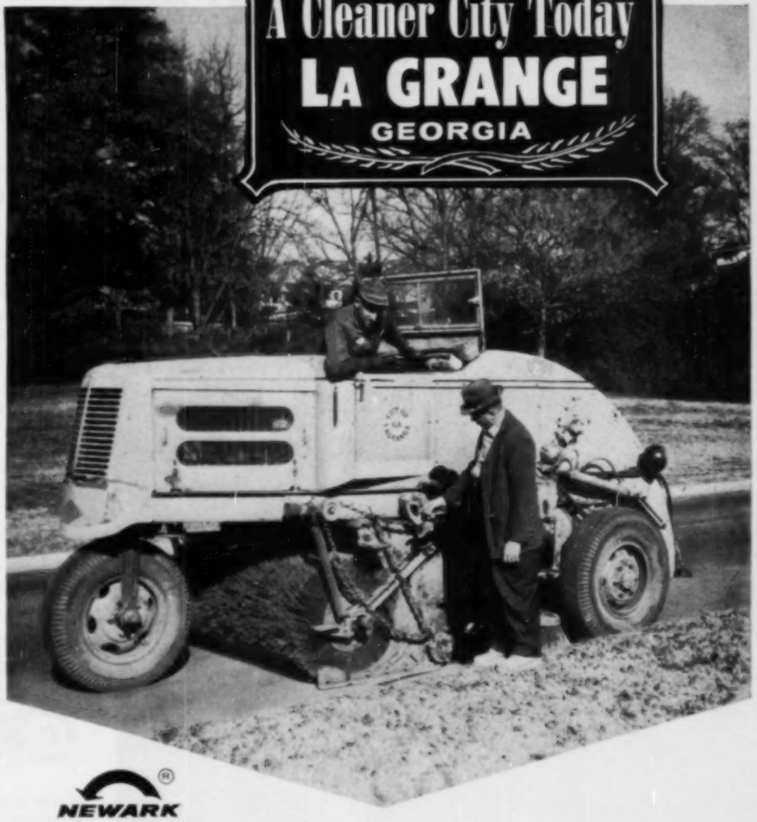
**458** . . . dependable and it works fast, reports a descriptive 12-page bulletin on the Yumbo, an all-hydraulic hoe-loader-shovel crane available in three truck-mounted crawler and self-propelled models with a wide range of working attachments. Write HYDRAULIC EQUIPMENT SHOVEL CO., BANK OF THE SOUTHWEST BLDG., HOUSTON 2, TEXAS.

### Power-Operated Hose Reel

**459** Municipal and county garages will find the Zierco to be an electric-powered hose reel designed for heavy-duty use, able to pay out and take up hose at the rate of 100 fpm, easily wall or ceiling mounted, and with capacities up to 500 feet. Write ZIERDEN CO., 3815 S. KINNICKINNIC AVE., MILWAUKEE 7, WIS.

***(See page 51 for more Bulletins)***

# DANLINE
## SWEEPS THE NATION
## A Cleaner City Today
## LA GRANGE
GEORGIA

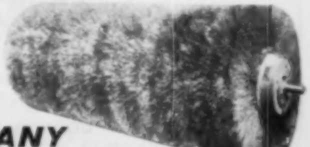


NEWARK

LaGrange, Georgia, noted for its textile industry, and in particular, its modern approach to street sweeping. R. E. Hadley, Street Dept. Supt. said, "We tried a Danline brush. The first broom we tested showed us we could save considerable money so we converted the rest of our equipment, and our streets are now cleaner. We are saving money besides. We estimate the sweeping mileage per broom to be 1832 miles. Our total cost of replacing a broom is $244, making our cost for brush replacement 13¢ per mile. This is a savings of approximately 50% over our previous operation." Danline can be your answer to cleaner streets. Call us today . . . or contact our nearest dealer.

59-53

*Leadership Proved Through Performance!*

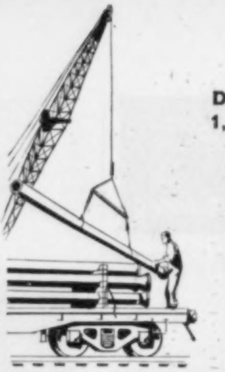


**NEWARK BRUSH COMPANY**

260 MICHIGAN AVE., KENILWORTH, N. J.

# HOW MUCH IS IT COSTING YOU TO PUT THIS PIPE IN THIS POSITION?

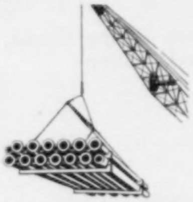
GRIFFIN-20 COUNCIL BLUFFS
UND. LAB. INC. INSP.



### DO YOU UNLOAD PIPE 1, 2, OR 3 AT A TIME?

If you do you'll find unloading *flat cars* easier, more economical than unloading from a gondola. Perhaps you already have the crane capacity to save even more man hours by using standard pallets especially designed for *Griffin-20** pipe. With a fork-lift, or a crane, you can unload 96 pipes in *four* or *eight* lifts. (One flat car of 6" pipe, or four double-pallets.) Or, if your crane is in use elsewhere, "skid" pipe directly to your truck or to your stockpile.

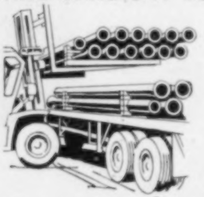
### DO YOU STOCKPILE?



Our single-layer and double-layer pallets are specifically designed for multiple handling. Pipe remains palletized, ready for re-loading. Which pallet can your lift handle?

| Single-Layer Pallets | | | Double-Layer Pallets | | |
|---|---|---|---|---|---|
| **Size** | **Pieces** | **Weight** | **Size** | **Pieces** | **Weight** |
| 4" | 16 | 2½ tons | 4" | 32 | 5 tons |
| 6" | 12 | 3¼ tons | 6" | 24 | 6½ tons |
| 8" | 9 | 3¾ tons | 8" | 18 | 7¼ tons |
| 10" | 7 | 3¼ tons | 10" | 14 | 6½ tons |
| 12" | 6 | 3⅞ tons | 12" | 12 | 7¾ tons |

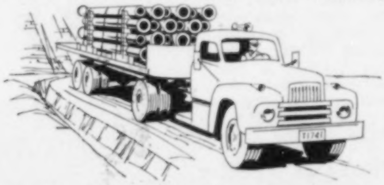
### IF YOU STOCKPILE YOUR PIPE, WHAT IS YOUR COST FOR RE-LOADING IT AND TAKING IT TO YOUR JOB-SITE?



Pallets are designed for *quick* re-loading on trucks or flat-beds for installation-site delivery. You reap the benefits of a *double saving* in man-hours, since you save as much in re-loading as you do in unloading!

### CAN YOU USE PIPE TRUCK-DELIVERED TO YOUR JOB-SITE?

All trucks for *Griffin-20* pipe are equipped with ropes and skids for easy trench-side placement of individual pipes. Use of an overhead crane is not necessary.



**Remember...Ultimate cost is not what you pay for pipe, but how much it costs you to deposit it alongside trench.**

*Griffin-20 trademark is the property of Griffin Wheel Company.

**GRIFFIN PIPE** DIVISION

**GRIFFIN WHEEL COMPANY . . .**
**COUNCIL BLUFFS, IOWA**

GRIFFIN PIPE DIVISION
COUNCIL BLUFFS

**CHICAGO AREA** POrter 6-0452 • 850 East Green Street,
Bensenville, Illinois Marvin E. Simpson, District Manager
Alex E. Kessler (East Troy, Wis.) Sales Representative

**COUNCIL BLUFFS** 322-6641 • 2601 Ninth Avenue
John L. Larson, Sales Representative

**DENVER** West 5-2427 • 1400 W. Evans Avenue
John M. Masterson, District Manager

**ST. PAUL** Prospect 6-1521 • 941 Johnson Parkway
William R. Colton, District Manager
Willard F. Klimmek, Sales Representative

**KANSAS CITY, KANSAS** DRexel 1-5690 • 1134 S. 12th Street • Thomas M. McGinley, Sales Representative

## MONEY SAVING *catalogs*

**Write to address given or circle corresponding number on free post card on page 55.**

### Asbestos-Asphalt Mixes for Paving

460 Two technical bulletins on the use of J-M Asbaltic asbestos fiber in asphalt mixes are now available from JOHNS-MANVILLE, 22 E. 40TH ST., NEW YORK 16, N. Y. *Bulletin* AFD-17A covers the application of asbestos fiber to dense graded asphalt paving mixes; *Bulletin* AFD-18A, to asphalt curbing.

### Smooth-Handling Wheel Loader

461 The 65 engine horsepower "3010" moves confidently into tough loading and material handling jobs, tackles major trenching assignments with ease. It's designed to achieve higher production at lower costs. For details, write JOHN DEERE, 3300 RIVER DRIVE, MOLINE, ILL.

### Diesel-Powered Centrifugal Pumps

462 *Bulletin* DCP 1-30 covers the series of seven new air-cooled, diesel-powered, self-priming centrifugal pumps that supplement the present water-cooled line of RICE PUMP & MACHINE CO., BELGIUM, WIS. and are available with 2, 3, 4 and 6-inch openings and in capacities of from 15,000 to 90,000 gph.

### New Barricade Flashers

463 These improved units concentrate more light on the danger or obstacle; they're easier to service and have swivel head and double warning beam. Full facts on Visi-Flash warning signals Nos. 665 and 675 are available from R. E. DIETZ CO., DEPT. 93, 225 WILKINSON ST., SYRACUSE 1, N. Y.

### Bradley's New Fixture Line

464 Literature is now available on the 1961 fixture lines for industrial applications, recently introduced by BRADLEY WASHFOUNTAIN CO., MILWAUKEE, WIS. Products include stainless steel column showers and wall hung showers, 36-inch semi-circular washfountains, 54-inch circular stainless steel washfountains and the new Duo.

### Variable Pitch Mower

465 ROOF MFG. CO., PONTIAC, ILL., reports its 30-inch model especially adapted for park, cemetery, highway, municipal and school maintenance. Swivel Glide wheels with 30-inch lawn shield unit are two new features that provide faster mowing as well as better maneuverability.

### The 77 Trenchliner

466 . . . digs in fast, speeds small main and service line work, cuts 6-18 inch trench down to depths of 5 feet at speeds up to 21 lineal fpm. It's designed to lower costs on small-sized trenching assignments. Bulletin available from PARSONS CO., NEWTON, IA.

### Planning Spectator Seating

467 A 6-page brochure explains how Universal steel portable bleachers make possible the pre-planning and design of safe outdoor seating for maximum use and future expansion. For a copy, write UNIVERSAL BLEACHER CO., CHAMPAIGN, ILL.

### Heavy-Duty Plowing Disc

468 SHOVEL SUPPLY CO., INC., 4900 HINES BLVD., DALLAS, TEXAS, has just issued a new bulletin on the Ferguson plowing disc designed for cutting, plowing, aerating and mixing soils on earthfills for dams, highways, and airports.

*(See page 52 for more Bulletins)*

# Use Northern Gravel for Rapid Sand Filter

This is the beautiful water filtration plant of the city of Springfield, Illinois . . . another user of the Northern Gravel Company's filter sand and gravel.

## Filter Sand Specifications

are carefully laid out. The Effective Sizes and Uniformity coefficients used by Consulting Engineers and also recommended by the American Water Works Association are the result of long years of research and experience.

The Northern Gravel Company is equipped to give you prompt shipment whether it be one bag or many carloads, exact to specifications. Filter sand can be furnished with any effective size between 0.35 MM and 1.20 MM.

## Chemical Quality

of the filter sand is also important. It must be hard, not smooth, and free of soluble particles. This requires perfect washing and grading facilities. We have every modern device for washing, drying, screening and testing.

## Filter Gravel

supporting the Filter Sand Bed, must be in turn, properly graded to sizes calculated to support the Filter Sand, and be relatively hard, round and resistant to solution.

Northern Gravel has no equal in facilities and our reserves of both sand and gravel are inexhaustible. Northern Gravel Company has been in business over 47 years. We guarantee uniformity of products and our records enable us to duplicate your requirements on short notice. Our location is central and we have commodity rates in every direction.

**Northern Gravel Company**

**Box 307** **Muscatine, Iowa** **Phone: AMherst 3-2711**

# FREE catalogs

Write to address given or circle corresponding number on free post card on page 55.

### Transmits Water Information

469 A 4-page bulletin details a new system of pulse information data transmission of metering, which will be of interest to municipal water departments. Engineering description and illustrations of the system at work are included. Write J. S. WINKLER, PROGRAMATION DIV., GUARDIAN ELECTRIC MFG. CO., 1621 W. WALNUT ST., CHICAGO 12, ILL.

### Simplified Valve for Pressure Lines

470 Circular No. 26 is a must for water works and sewage works men and engineers, for it describes a hub-end iron-body valve for use with concrete pressure pipe which eliminates the need of adapters when installing valves in a concrete pipe line. For a copy, write M & H VALVE AND FITTINGS CO., ANNISTON, ALA.

### Snaps Up Litter

471 The "Litter Shark" is a push-type vacuum cleaner that snaps up litter of just about every kind, shredding and bagging it as fast as its operator can walk. For features and specifications, write TARRANT MFG. CO., 27-29 JUMEL PLACE, SARATOGA SPRINGS, N. Y.

### Easy Engine Starting

472 A new 40-ampere alternator, the 6000 Series, for medium-duty service on any automotive vehicle assures easy engine starting even in severe weather, permits full use of electrical accessories at all speeds (including idle), and improves the performance of the engine ignition system. Write LEECE-NEVILLE CO., 1374 E. 51ST ST., CLEVELAND 3, OHIO.

### Photocopying Machines

473 A fact-filled booklet on the applications of APECO photocopying machines points out the advantages they offer in terms of time and money saved, and includes details and description of the Century, a budget-priced unit. Write AMERICAN PHOTOCOPY EQUIPMENT CO., 2100 W. DEMPSTER ST., EVANSTON, ILL.

### Skilled Engineering

474 . . . in the fields of traffic engineering, urban master planning, sewerage systems, streets and other areas of municipal concern are areas of specialization of CLARKESON ENGINEERING CO., INC., DEPT. 23, 285 COLUMBUS AVE., BOSTON 16, MASS. Brochure gives full service story.

### Insecticide Fog Generator

475 CURTIS AUTOMOTIVE DEVICES, INC., P. O. BOX 297-7, WESTFIELD, IND., reports its new 52-inch long Dyna-Fog "70" equally effective for indoor or outdoor applications, minimizes operator fatigue, easily portable, and able to produce substantial savings in insecticide and labor costs.

### Floodlights

476 Bulletin 6435C, revised and expanded, includes photometric data on the G-E L-69A general purpose floodlight with 1500-watt filament lamps and 400-, 700- and 1000-watt mercury vapor lamps. Applications and product features are documented. For copy, write GENERAL ELECTRIC CO., SCHENECTADY 5, N. Y.

### Power Diggers

477 Sherman diggers are designed to dig fast, consistently, reduce operating costs. The Bobcat digs well in tight spots or where light weight is necessary; the Panther is big and fast, geared to high production; the Major has 12-foot digging depth. Write ALLIED EQUIPMENT, FORD MOTOR CO., 2500 E. MAPLE RD., BIRMINGHAM, MICH.

### Cleaning Water Meters

478 *Bulletin* 32-C describes a method that will enable you to quickly and thoroughly clean water meters, pipe valves, fittings, and metal road markers with complete safety. Write RUEMELIN MFG. CO., 3860 N. PALMER ST., MILWAUKEE 12, WIS.

### Catalog No. F-915 Rev.

479 . . . unfolds the full story of Realock Fence, describes, illustrates and gives specifications for residential, barbed wire, recreation, institutional, and tennis court fence and gates. Write COLORADO FUEL AND IRON CORP., BUFFALO, N. Y., DENVER, COLO., OAKLAND, CALIF.

### Want to Rent a Roller?

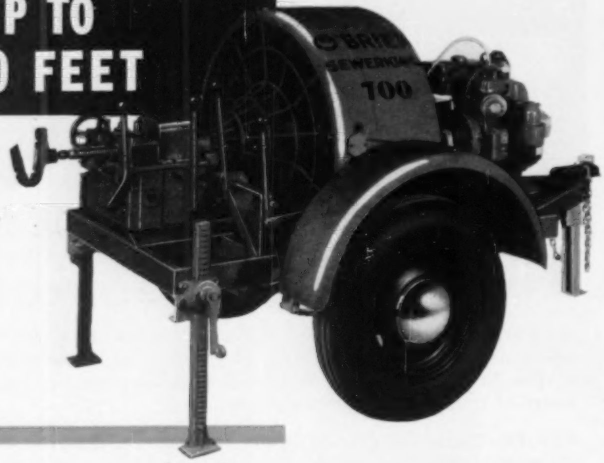
480 Latest catalog data from THE GALION IRON WORKS & MFG. CO., GALION, OHIO, reports on the Galion Rent-A-Roller Plan and gives details on the complete Roll-O-Matic line of variable weight rollers (3 to 20 tons).

### Deal with Brush Disposal?

481 Then you'll want to peruse the 20-page booklet now available from FITCHBURG ENGINEERING CORP., DEPT. AC-14, FITCHBURG, MASS., which will supply facts on a well-engineered line of chippers and show you how to reduce the cost of brush disposal operations.

*(See page 54 for more Bulletins)*

CLEANS SEWERS
UP TO
700 FEET



**Big, husky O'Brien Sewerking does the job ALL BY POWER!**

•It's a fact—and we can prove it—sewer cleaning jobs can be done BETTER, FASTER, CHEAPER with the all-power SEWERKING. Yes—and costs can be reduced as much as 50-75%!

The basic reason is that *power* does all the work. Power drives the safety steel cable into the sewer. Power revolves the cable and cutting tools to cut away the stoppage Power pulls back the cable in the storage drum. All the operator does is handle the controls of the exclusive OB Power Transmission—the secret of handling long lengths of cable with power drive.

A COMPLETE SEWER CLEANING MACHINE —COSTS LESS TO OWN AND OPERATE

Nothing to add—nothing to take off—nothing on the street. A big machine, yet occupies only 20 square feet. Let us refer you to nearby cities which are cleaning sewers the up-to-date way—with the O'BRIEN SEWERKING.

*Nationwide Sales and Service*

**O'BRIEN MANUFACTURING CORPORATION • CHICAGO 46 ILL.**

Manufacturers of
O'Brien
Sewerking

*FOR FREE CATALOG MAIL THIS COUPON*

O'BRIEN MFG. CORP. 5632 Northwest Highway • Chicago 46
*O.K. Send us the SEWERKING power Story.*
Dept. AC-461
City________ State________
Address________
Attention of________
Title________ Dept.________

As Little as $216
per Month Puts This New
Wayne Sweeper to Work
on Your City Streets!

Now *every* city can acquire a Wayne Street Sweeper without capital investment for as little as $216 per month—*less than the cost of one man with a pushbroom!*

Wayne's ***New*** 48-month Rental Plan enables you to immediately start your own street sanitation program . . . to have sparkling clean streets everywhere in your city. You pay rent from operating funds. Labor savings *more* than cover the cost! And you can own your Wayne at the end of the rental period *for just $1.00*. What's more, you choose your own rental payment schedule.

All Wayne Street Sweepers are available through the new Wayne Rental Plan.

Before you invest in *any* street cleaning program, find out how easy it is to acquire the finest sweeper built—Wayne. For full details, send the coupon today. Your inquiry will receive our prompt attention.

**WAYNE MANUFACTURING CO.**
3432 East Lexington Street
Pomona, California

Send me details on the Wayne Rental Plan

Name______________________________

Title______________________________

Address____________________________

City____________________ Zone____ State______

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*Main Plant and Offices:*
3432 EAST LEXINGTON STREET, POMONA, CALIFORNIA

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**Export:** Henry R. Jahn & Sons, Inc., New York City

**POKER? Play to win!**

**How would you play this hand?**

Odds are 50-50 you're high hand before the draw. Open, or if you're to left of opener, raise. Don't stay on less, though. Queens or under most times are drawing against a better hand.

**Here's a sure winner from FORD:**

Two new Ford Tractors built for half-yard loading, for 10 ft. or 12 ft. digging!

New 4000 Series Industrial Tractor for work demanding up to 42 drawbar horsepower; new 2000 Series for work requiring up to 32 drawbar horsepower.

Gasoline or diesel, choice of transmissions, job-matched with dozens of front, side and rear attachments.

Get details from your Ford Tractor Dealer, or write:

**Tractor and Implement Division**
**Ford Motor Company**
**Birmingham, Michigan**

Ford
TRACTORS
EQUIPMENT

# "Better Municipal Services and Reduced Costs

***. . . may be readily possible by using the improved municipal equipment offered below"***

Write to address given or circle corresponding number on free post card on page 55.

### Water Filter Sands and Gravel

482 When you specify Red Flint sands and underdrain gravel you specify a high silica content product, uniformly graded within close limits and available in large as well as small sizes and processed to exacting specifications. For literature, write EAU CLAIRE SAND & GRAVEL CO., EAU CLAIRE, WIS.

### Pressure Tapping Concrete Pipe

483 A motion picture demonstrates the simplicity, speed and economy with which small crews working with standard equipment can install new outlets in concrete pipelines without interrupting service. It's available from AMERICAN PIPE AND CONSTRUCTION CO., P. O. BOX 3428 TERMINAL ANNEX, LOS ANGELES 54, CALIF.

### Municipal Engines

484 These engines power sewage pumps, blowers, and generators in sewage treatment plants and in more than 100 cities they provide prime power in water works, or act as supplementary power, or as auxiliary power. CLIMAX ENGINE MFG. CO., DIV. OF WAUKESHA MOTOR CO., CLINTON, IA. will provide full facts.

### Rubber Additives

485 Rubber added to bituminous paving mixtures decreases destructive effect of temperature extremes, reduces brittleness, supplies needed elasticity. An 8-page booklet describes Rub-R-Road compounds for all types of bituminous paving and resurfacing. Write RUBBER PAVING DIV., XYLOS RUBBER CO., AKRON 17, OHIO.

### New Type of Reflective Street Sign

486 MUNICIPAL STREET SIGN CO., INC., 128-14, 14TH AVE., COLLEGE POINT 56, N. Y., is producing a new type of reflective street sign made of one-piece extruded aluminum, which incorporates a double-faced sign blade complete with supporting fixtures. It's known as Type EA-15 and is furnished with "Scotchlite" reflective sign faces.

### Mercury Lamps

487 The LIGHTING DIV., SYLVANIA ELECTRIC PRODUCTS INC., DEPT. 634, 60 BOSTON ST., SALEM, MASS., reports that the new Banner mercury lamps put 2½ times more light on the street than incandescent and that the lifespan of these lamps has been extended to 12,000 hours.

### Asphalt Patching a Problem?

488 Garden Grove, Calif. put a VR-28-W vibrating compactor to work: maintenance production tripled; costs decreased 80%; patch life was extended considerably. There are 9 models of these units from 13 to 72-inch widths. Write ESSICK MFG. CO., 1950 SANTA FE AVE., LOS ANGELES 21, CALIF.

### Closed Circuit Monitors

489 A new series of closed circuit television monitors equipped to fill the wide range of needs in the municipal surveillance control field are capable of three times the picture quality of home sets, but are simpler to maintain and adjust. They operate with any standard monochrome camera. Write GENERAL ELECTRIC COMMUNICATION PRODUCTS DEPT., P. O. BOX 4197, LYNCHBURG, VA.

### If You're a Valve User

490 PANTEX, P. O. BOX 22351, HOUSTON 27, TEXAS, is now making available to users of valves literature that fully describes the uses and applications of its quality and low cost "complete assembly" valve actuators, designed to solve the problems associated with automatic valve operation.

### Powerful Outboard Motor

491 The 1961 Big Twin is a hard-working, load-lugging, smooth-running engine with a fixed-jet carburetion. It develops 40 hp at 4500 rpm and ably meets the tough demands of municipal waterfront service. Write EVINRUDE MOTORS, 4143 N. 27TH ST., MILWAUKEE 16, WIS.

### Root Cutter-Sewer Cleaner

492 This sewer cleaning tool adjusts in just 30 seconds to fit sewer from 8 to 30 inches. It cleans the *entire* sewer wall, removes sediment and roots, restores the system to almost 100% clean condition. Write EXPANDING SEWER MACHINE CO., 108 E. WALNUT ST., NAPPANEE, IND.

### Bulletin 300-21

493 . . . will tell you just about everything you want to know about Fluoresigns, which give high-level controlled light for highway signs, contributing to safe, smooth traffic flow. Write REVERE ELECTRIC MFG. CO., 7420 LEHIGH AVE., CHICAGO 48, ILL.

### For Tough Digging Jobs

494 If you want a machine that delivers fast, precise ditching at lowest possible cost, resists stress, cuts vibration to a minimum, then you'll want to find out about the 305, 307 and 308 Buckeye ditchers. Write GAR WOOD INDUSTRIES, INC., WAYNE, MICH.

### Pneumatic Concrete Placement Machine

495 A new, all-purpose concrete placing machine performs four major job operations: wet gunning, concrete placing, hoisting and placing mortar and grout, high and low pressure grouting. It is called Uni-Cretor. Write AIR PLACEMENT EQUIPMENT CO., 1000 W. 25TH ST., KANSAS CITY 8, MO.

### Water Meter Repair

496 *Bulletin* No. 101 (revised) describes Model 30 Liquamatte, a wet blasting machine that makes the cleaning of water meters more thorough, more efficient, more rapid. For a copy, write LORD CHEMICAL CORP., 2068-L6 SOUTH QUEEN ST., YORK, PA.

### Sized Right for Municipal Use

497 The 310 crawler will help you meet those lighter, scattered municipal jobs more easily. It lifts 3500 pounds, gets heaped ¾-yard bucket loads, dumps clean with high clearance. Attachments add to its versatility. Write J. I. CASE CO., DEPT., C1561, RACINE, WIS., for details.

### These Brooms Sweep Clean

498 BROOKLYN FIBRE BROOM CO., INC., 46 DINSMORE PLACE, BROOKLYN 8, N. Y. can supply facts on brooms for just about every municipal use—Perfex street sweeping machine brooms and materials, rotary power sweeper brooms, highway, tennis court and fire fighting brooms.

***(See page 58 for more Bulletins)***

**If you need information on any type of municipal service or equipment, these reply cards will get action in a hurry.**

Postage Will be Paid by Addressee

No Postage Stamp Necessary If Mailed in the United States

## BUSINESS REPLY CARD

FIRST CLASS PERMIT No. 281, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE
470 PARK AVENUE SOUTH
NEW YORK 16, N. Y.

## MUST YOU DO IT THE HARD WAY?

To THE AMERICAN CITY's Catalog Supply Department:
Please send me literature on items numbered as follows, starting on page 44

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418 419 420 421 422 423 424 425 426 427 428 429
430 431 432 433 434 435 436 437 438 439 440 441
442 443 444 445 446 447 448 449 450 451 452 453
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I would also like to receive manufacturers' booklets on..........................................

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Name: (Please Print)..........................................

Title..........................................

Address..........................................

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A Listing of Your Business Connection is Important

To THE AMERICAN CITY's Catalog Supply Department:
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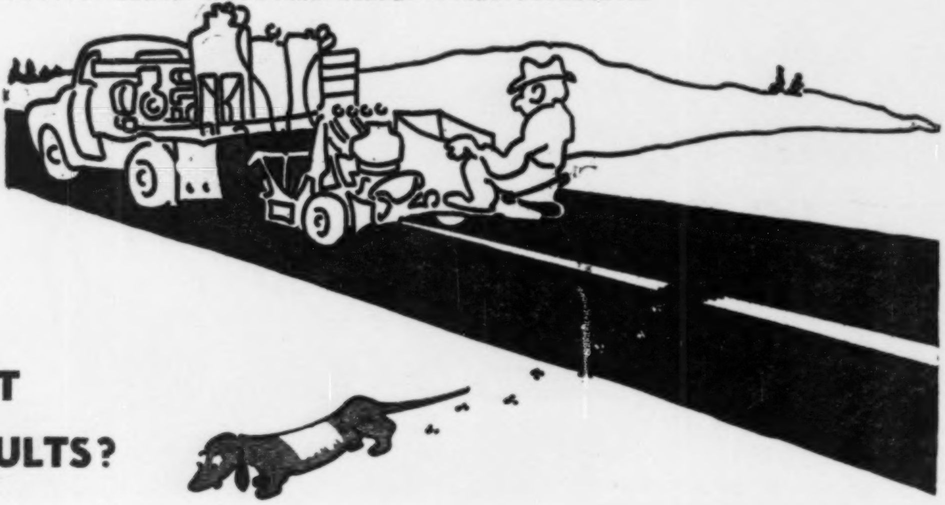
A Listing of Your Business Connection is Important



# WHEN YOU WANT QUICK RESULTS?

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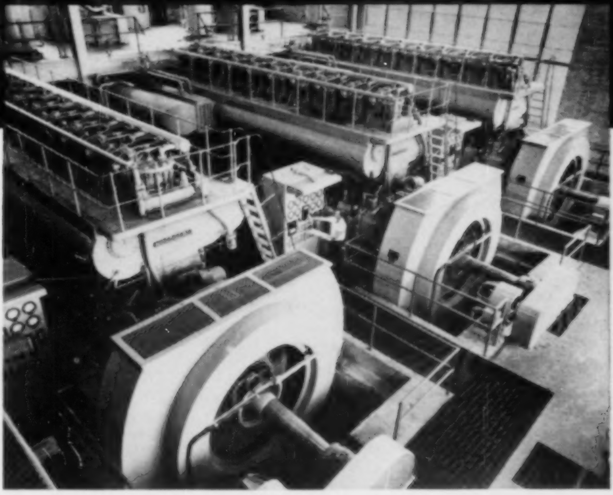
**BUSINESS REPLY CARD**
FIRST CLASS PERMIT No. 281, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE
470 PARK AVENUE SOUTH
NEW YORK 16, N. Y.

**Save time and effort by using these reply cards when you want additional information on any product or service mentioned or advertised in this issue.**

# HOUMA LIGHTS ITS WAY with Nordberg engines totaling 25,350 hp

HOUMA LIGHT & WATER PLANT



Houma, long known as the shrimp center of Louisiana, has built its municipal power plant around Nordberg engines . . . and has eliminated the necessity for purchased power.

Power demands in Houma have grown steadily since 1949 when the first three 2,000 hp Nordberg natural gas burning engines were added to their 2,900 hp plant. Today, with only two of the original five oil burning engines in use, Houma's 15,800 kw peak load is satisfied by an additional four Nordberg units, the last three being big 10 cylinder, dual fuel engines rated at 5,250 hp each.

When *you* need *long term, dependable* power, consult Nordberg. See why there are so many *repeat orders* like those for the City of Houma for Nordberg Diesel, Duafuel, and Spark-Ignition gas engines, in sizes to over 12,000 hp.

*INSTALLATION DATA:*

1949—installed 3 Nordberg 2,000 hp engines.
1954—installed Nordberg 3,600 hp engine.
1959—installed 3 Nordberg 5,250 hp Duafuel engines.

**NORDBERG MANUFACTURING COMPANY • Milwaukee 1, Wis.**

ATLANTA • CLEVELAND • DALLAS • DULUTH • HOUSTON • KANSAS CITY • MINNEAPOLIS • NEW ORLEANS • NEW YORK • ST. LOUIS
SAN FRANCISCO • TAMPA • WASHINGTON • WICHITA, KAN. • TORONTO • VANCOUVER • JOHANNESBURG • LONDON • MEXICO, D. F.

NORDBERG MACHINERY

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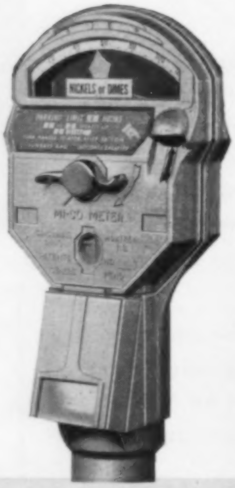
P161



TRAFFIC MOVES
*and*
INCOME GROWS
*with*
MI·CO
PARKING
METERS

MI-CO Meters chase parking hogs, bring more people into stores, give city coffers a transfusion. They pay for themselves in a hurry, one reason being that correct engineering and structural ruggedness practically eliminate down-time and consequent loss of revenue. MI-COs have only six moving parts, stay on the job in all kinds of weather. They now serve more than 500 cities here and abroad, some with original installations 15 years old. Adjustable to any number of hours, and 1¢ to 25¢. Before you decide on original or replacement meters for curb or off-street parking, get the whole story of MI-CO advantages . . . including the exclusive tamperproof coin collection system.

M
ABC
*A Symbol of High Quality*

MI-CO PARKING METERS, P. O. BOX 668-A, COVINGTON, KENTUCKY
*(The Michaels Art Bronze Co., General Offices and Plant, Erlanger, Kentucky)*
OTHER MICHAELS PRODUCTS: Architectural Metal • Curtain Walls
Display Cases • Reversible Windows • Tablets • Memorials • Signs

# CATALOGS *for Improved Municipal Services*

Write to address given or circle corresponding number on free post card on page 55.

### Tepee-Type Refuse Burner For Small Cities

499 An informative folder from WILCO MACHINE WORKS, INC., BOX 3897 AC-3, MEMPHIS, TENN., shows how smaller communities can achieve high-efficiency, low-cost refuse incineration through use of Tepee Refuse Burners. Dimensions, specifications included.

### Industrial Tractors and Equipment

500 In a new, illustrated catalog, INTERNATIONAL HARVESTER CO., 180 N. MICHIGAN AVE., CHICAGO 1, ILL., displays the versatility of its complete line of 9 industrial tractors, ranging from the 13.4-hp International Cub Lo-Boy to the 95-hp International 660 tractor, and matched equipment.

### Suction-Type Leaf Sweeper

501 *Bulletin* A-457 discusses Leaf-Vac, a truck-mounted leaf sweeper with an efficient vacuum-operated pick-up system that provides fast collection of leaves in streets and gutters. Flexible hose attachment removes matted leaves from drains, catch-basins, and other hard to reach places. Write BAUGHMAN MANUFACTURING CO., INC., JERSEYVILLE, ILL.

### Sweeps within Inches of Parked Cars

502 This rear broom motor sweeper with automotive-type steering is highly maneuverable, easy to steer, gives operator full visibility. It's available in 2 and 4-plus cubic yard models. For details, write AUSTIN-WESTERN CONSTRUCTION EQUIPMENT DIV., B-L-H, AURORA, ILL.

### Sturdy Litter Baskets

503 Available from NORWICH IRON WORKS, INC., 161 STATE ST., NORWICH, N. Y., is literature on a line of hot-dip galvanized litter baskets that will catch the public eye and invite them to keep streets and parks clean.

### What's New in Photocopying

504 A 4-page illustrated booklet will tell you what's new in office copying methods, machines, films and paper by Cormac, manufacturer of a complete line of desk-top copying equipment. Write CORMAC PHOTOCOPY CORP., 80 FIFTH AVE., NEW YORK 11, N. Y.

### Production Grading

505 Is the title of a new, 12-page booklet, D102, prepared by CATERPILLAR TRACTOR CO., PEORIA, ILL., which reviews the many possibilities of using motor graders as all-around production tools—for finish grading, spreading fill, haul road maintenance, mixing base material.

### 800 Cities

506 . . . are ripping ugly, unsightly tree stumps to shreds in just minutes by using Pow-R-Stump Cutters, saving both man-hours and money. For complete information on these one-man operated units, write VERMEER MFG. CO., 1462 W. WASHINGTON, PELLA, IA.

### Traffic Signals

507 The kinds, sizes, advantages, specifications—just about everything you would want to know about the complete line of Econolite traffic signals is covered in this full-line bulletin from ECONOLITE CORP., 8900 BELLANCA AVE., LOS ANGELES 45, CALIF.

*(See page 61 for more Bulletins)*

# THE POLICE CAR YOU'LL SWEAR BY— INSTEAD OF AT!

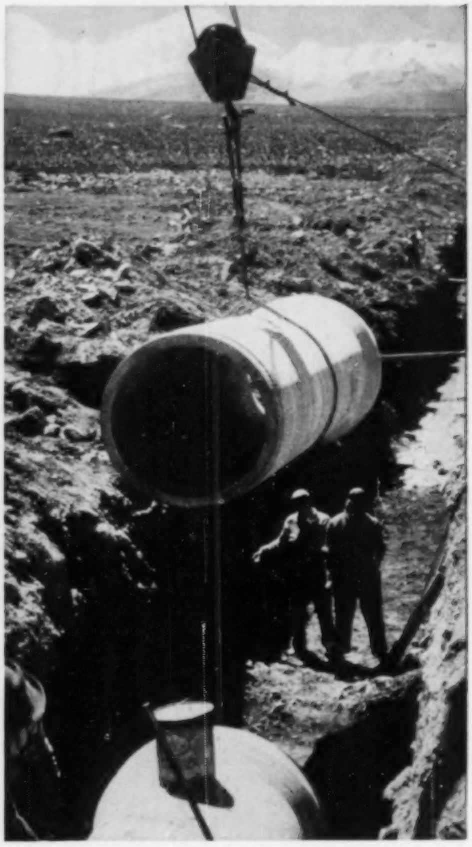
This 1961 Plymouth Pursuit Special 8 is a Solid Performer clear through. Its rugged reliability springs from Unibody—welded, quiet, tough. Your officers will swear by the standard Golden Commando V-8. This "super" engine responds with lightning-quick action, takes the hottest chases in stride. Heavy-duty 12-inch Total-Contact Brakes, Torsion-Aire Ride, new heavy-duty alternator are all included at *no* extra cost. This is the one they don't outrun. See your Plymouth dealer and see for yourself today!

## 61 PLYMOUTH

SOLID PERFORMER

19 POLICE 61
E 6804

# METROPOLIS OR MOUNTAIN TOP



# PILE SLEEVE OR PIPELINE

LOCK JOINT PIPE COMPANY products for a variety of purposes are offered on a world-wide market. The majestic New York skyline looks down on a bargeload of 144″ Lock Joint Concrete Subaqueous Pipe en route to a metropolitan sewer outfall project, as well as on Lock Joint Concrete Pile Sleeves being installed for the Port Authority's pier construction program.

15,000 feet up on the bleak slopes of the Andes, the installation of 40 miles of Lock Joint Concrete Pressure Pipe made vital water available to the Southern Peru Copper Company's $300,000,000 mining enterprise.

So it is throughout the world. Lock Joint products are bringing fertility to the Negev Desert. Additional water flows to thriving Cape Town through a Lock Joint supply line. Lock Joint transmission and distribution mains as well as sewer lines help meet greatly increased demands in booming Caracas. These are only a few of the thousands of communities at home and abroad served with complete satisfaction by Lock Joint Pipe Company.

LOCK JOINT
MADE ITS WAY
BY THE WAY ITS MADE
CONCRETE PIPE

**LOCK JOINT PIPE CO.**

East Orange, New Jersey

Member of the AMERICAN CONCRETE PRESSURE PIPE ASSOCIATION

Sales Offices: Chicago, Ill. • Columbia, S. C. • Denver, Col. • Detroit, Mich. • Hartford, Conn. • Kansas City, Kan. • Perryman, Md. • St. Paul, Minn. • Winter Park, Fla.

Pressure • Water • Sewer • REINFORCED CONCRETE PIPE • Culvert • Subaqueous

# FREE catalogs

## You will find of interest

Write to address given or circle corresponding number on free post card on page 55.

### Mobile Two-Way Radio

508 Latest catalog from ALLEN B. DU-MONT LABORATORIES, DEPT. AC1, DIV. OF FAIRCHILD CAMERA AND INSTRUMENT CORP., 750 BLOOMFIELD AVE., CLIFTON, N. J., points out how vehicles and base stations equipped with Transicom two-way radio (FM receiver/transmitter) extend your network of communications and make services more efficient.

### Ball Valves

509 These vlaves are ideally suited for automatic pump stop and check service, pressure regulating, and strategically located shut-off applications. For fact-filled bulletin on List 26 valves, write WILLAMETTE IRON AND STEEL CO., VALVE DIV., 2800 N. W. FRONT AVE., PORTLAND 10, ORE.

### When You Blast-Clean Water Meters

510 . . . the Liquid Honing way, removal of dirt, scale, discoloration and paint is quickly, thoroughly and effectively accomplished, without change in precision tolerances. For details, write VAPOR BLAST MFG. CO., 3037 W. ATKINSON AVE., MILWAUKEE 9, WIS.

### Tapered Steel Lighting Tubes

511 Engineered for permanence, strength and safety, Tulito tapered steel lighting tubes accommodate 2 to 40 lights, are ideally suited for area and floodlighting applications — playgrounds, athletic fields, shopping centers. Write MEYER MACHINE, INC., P. O. BOX 131, RED WING, MINN.

### Versatile Shovel-Loader

512 Engineered to develop 9300-pound pryout capacity, this "telescopic reach" unit makes operations precise, fast, efficient. It has 36° rollback at ground level and handles a variety of quick-change attachments. Write MASSEY-FERGUSON INDUSTRIAL DIVISION, 126-1 SOUTHFIELD RD., DETROIT 32, MICH.

### The Time Is Now

513 . . . to start spring tree care, particularly your Dutch elm disease control program. DAVEY TREE EXPERT CO., KENT 16, OHIO, can supply the facts and tell you about its complete tree saving service, plus weed and brush control. Write to F. F. LOFGREN, SALES MGR.

### Bulletin on Municipal Supplies

514 Name it and you'll probably find it in this really big 100-page "Municipal Supplies" Catalog No. 163, published by W. S. DARLEY & CO., CHICAGO 12, ILL. An almost countless number of different items for all city departments are included.

### It Defies Corrosion

515 It defies trespassers and vandals and gate crashers and others of that ilk. It never needs painting and it's sturdy. *It* is Anchor chain link fence made of Reynolds Aluminum. For catalog, write ANCHOR FENCE, DEPT. AC-4, 6661 EASTERN AVE., BALTIMORE 24, MD.

### Grading Jobs Move Faster

516 . . . when an LW Adams grader is on the job. There are seven sizes, ranging from the 85-hp "330" to the big 190-hp POWER-*Flow* 660. All are engineered for hard work and to save time, money and effort. LETOURNEAU-WESTINGHOUSE CO., PEORIA, ILL. will send literature on request.

### It's a Scavenger

517 And it proves it every time it's on the job vacuuming leaves and debris or cleaning catch basins in minutes to 8-foot depths. For brochure on this multipurpose unit, write GOOD ROADS MACHINERY CORP., MINERVA, OHIO.

### 168 Pages of Castings

518 This new catalog is published by NEENAH FOUNDRY CO., NEENAH, WIS. It is packed with a wealth of information on gray and ductile iron construction castings for every municipal application.

### What's New in Snow Plows

519 Why not read the new 4-page, illustrated folder offered by VALK MFG. CO., CARLISLE, PA. and discover a new line of plows that will contribute to snow removal efficiency and economy. Specifications are included.

### Recommended for Sewage Treatment Plants

520 Engineer's Service Sheets AC-361 give details and specifications for aluminum glass covers which increase efficiency of sludge drying beds and are recommended for trickling filters and settling tanks. Write LORD & BURNHAM, IRVINGTON, N. Y.

### How to Clean a Beach

521 Catalog literature from LOCKWOOD GRADERS, GERING, NEBR., tells how the Beach Cleaner can help you achieve new efficiency in beach cleaning and explains how this machine moves under the surface to gather everything from cigarette butts to items 12 inches in diameter.

*(See page 62 for more Bulletins)*

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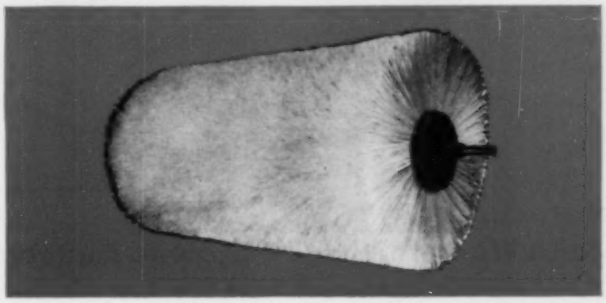
ROAD-TESTED Prostran®

Saves Jersey Town* Up To 35%

YOU CAN SAVE THIS KIND OF MONEY ON YOUR STREET SWEEPING OPERATION, TOO!



***YOU GET THESE BENEFITS WITH PROSTRAN-POLYPROPYLENE STREET SWEEPING FIBRE***

- Superior To Any Natural Or Synthetic Broom Material
- Reduced Cost Per Sweeping Mile
- Longer Lasting Use-Life
- Excellent Sweeping Efficiency
- Minimum "Down-Time" for Repeated Broom Filling
- Toughness and Superior Abrasive Action
- Excellent Flex-Life for Ideal Bend Recovery
- Excellent Resistance to Chemicals, Solvents, Greases, Oils and Many Common Acids
- Lightest Weight Of All Synthetics — More Bulk Per Pound
- Heavy Duty Efficiency and Clean Sweeping
- Top Performance Under All Weather Conditions

DISTRIBUTED IN UNITED STATES BY:

**New England States**
Atlantic Broom Service, Inc.
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**Alberta, British Columbia**
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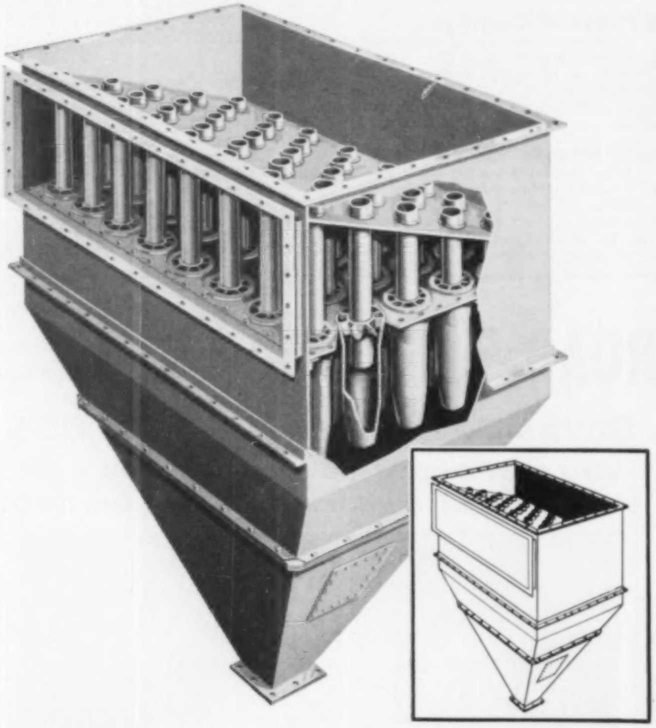
UNiversity 4-7414

E.B. & A.C.
WHITING
COMPANY
Burlington, Vermont

*New Ideas On Dust And Fume Control*



*New Products:*

**John Wood Improved Cyclone Collector**

New collector tube and inlet vane designs in the John Wood Cyclone Collector result in sharply increased operating efficiency. These improvements enable the John Wood engineered equipment to provide the uniform gas flow to each cyclone and to assure the high centrifugal force necessary to remove even the smallest particle sizes.

All steel construction and 9" diameter cast tubes and vanes mean high resistance to high temperatures and severe abrasion. A full range of special casting materials meets even the most severe requirements. John Wood Cyclone Collectors are compactly designed and simple to install. Several duct connections and a wide variety of tube arrangements are available to handle gas volumes up to several hundred thousand CFM.

*New Engineering:* The complete line of John Wood equipment also includes Flooded-Bed Scrubbers, Venturi Scrubbers, Involute Cyclones, Fabric Filters and combination units. Extensive John Wood laboratories are available for advanced research on your air pollution problems.

*New Service:* John Wood Air Pollution Control is fully programmed from analysis of existing conditions to equipment installation. Frequently economies result that make the installation self-liquidating through lower maintenance and replacement costs.

*Write for engineering assistance or specific product information. An air pollution preliminary analysis kit is available without obligation.*

QUALITY PRODUCTS JOHN WOOD SINCE 1867

AIR POLLUTION CONTROL DIVISION
**JOHN WOOD COMPANY**
12 NICOLET AVENUE FLORHAM PARK, N. J. TUcker 7-3200

## FREE catalogs

**Write to address given or circle corresponding number on free post card on page 55.**

### Pumps for Diversified Pumping Service

522 A number of descriptive bulletins, technical information bulletins and a useful Pumping Data Book (EM-77) are offered by PEERLESS PUMP, HYDRODYNAMICS DIV., FOOD MACHINERY AND CHEMICAL CORP., 301 WEST AVE. 26, LOS ANGELES 31, CALIF., which makes a comprehensive line of pumps for municipal and industrial applications in a wide range of sizes and types and in capacities up to 220,000 gpm.

### Easy Way to Renew Concrete Structures

523 How Gunite renews and repairs concrete tanks, reservoirs, sewers, bridges and other concrete structures both economically and permanently is explained in literature available from INDIANA GUNITE & CONSTRUCTION CO., INC., 1734 VILLA AVE., INDIANAPOLIS, IND.

### Refuse Trucks, Dump Bodies

524 The complete Heil line for 1961 includes dump bodies and hoists engineered for light, medium or heavy-duty service, with capacities of 2 cubic yards and up, and the Colectomatic Mark II refuse collection unit that can increase payloads up to 15%. Write THE HEIL CO., MILWAUKEE 1, WIS.

### Electronic Emergency Control of Traffic Signals

525 An EL-TEC transmitter mounted in an emergency vehicle can control all traffic lights for 700 to 3000 feet. It can also be used effectively as a roving police unit in criminal apprehension. For full facts, write EL-TEC, 97-AC NORTHFIELD RD., WEST ORANGE, N. J.

### Be Prepared!

526 The Handy resuscitator inhales and exhales, can be switched to "inhalation," and works as aspirator. Municipal emergency crews will find it most effective for "breathing" emergencies. Write NATIONAL CYLINDER GAS, DIV. OF CHEMETRON CORP., 840 MICHIGAN AVE., DEPT. 10-D, CHICAGO 11, ILL.

### When Building a Municipal Power Plant

527 . . . you'll want to think in terms of long term, dependable power delivered with economy. NORDBERG MFG. CO., MILWAUKEE 1, WIS., can tell you about a reliable line of diesel, Duafuel and spark-ignition gas engines, in sizes to over 12,000 hp.

### Rubber-Tired Tractor Shovel

528 Here's a unit that does the job of several pieces of equipment. Its attachments include "4-in-1" bucket, sideboom, backhoes, blacktop spreader, snow plows. For data on the Payloader and its allied equipment, write THE FRANK G. HOUGH CO., 710 SUNNYSIDE AVE., LIBERTYVILLE, ILL.

### Instant Two-Way Contact

529 Philadelphia's new ultra 2-way radio network comprises radios in 570 vehicles, a microwave system for remote control of base stations, loudspeakers for 250 vehicles and other innovations. For literature on RCA transistorized mobile radios, write RCA TELECOMMUNICATION CENTER, DEPT. S-4, MEADOW LANDS, PA.

**(See page 65 for more Bulletins)**

GALION
ROLL-O-MATIC
GALION
ROLLERS AND GRADERS
MILES AHEAD

616

# You'll stay ahead when the "Chief" leads the way!

Extra surface rolled every hour—that's one of the proved advantages when you operate the Galion "Chief" pictured above. Size for size it gets more done—faster—than other rollers of its type.

Its rugged design increases your rolling efficiency tremendously. Power-to-spare engine, hydraulic steering, fingertip control and Roll-O-Matic Drive result in better compaction with a smoother surface.

Take Roll-O-Matic Drive, for example, which applies power automatically. This one Galion feature alone promises at least 10% more surface rolled in any given time, under any terrain conditions, up grades or down.

For complete information contact your Galion distributor or write for Bulletin 410-A.

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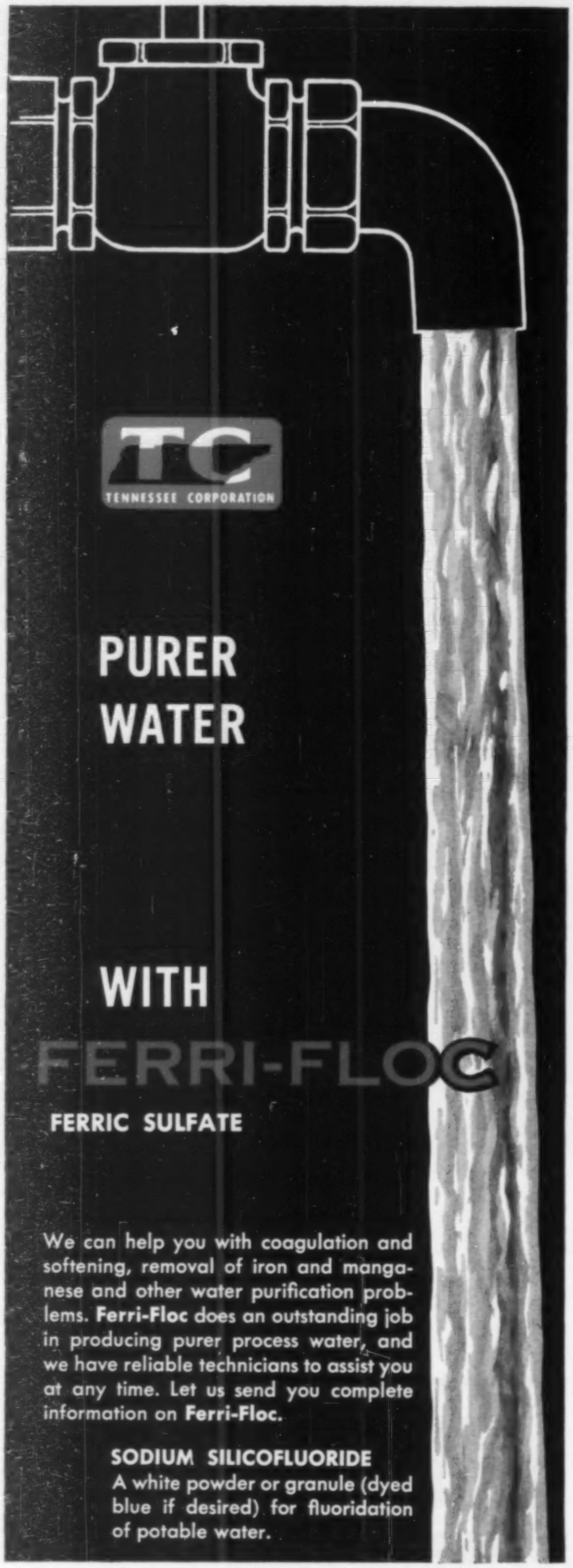
**GALION**
ROLLERS AND GRADERS

RENT A ROLLER
Ask your Galion distributor
about our cost-cutting
Rent-A-Roller Plan.

THE GALION IRON WORKS & MFG. COMPANY, GALION, OHIO, U.S.A.
General and Export Offices, Galion, Ohio, U.S.A.—Cable Address, GALIONIRON, Galion, Ohio



TENNESSEE CORPORATION

PURER WATER

WITH

FERRI-FLOC

FERRIC SULFATE

We can help you with coagulation and softening, removal of iron and manganese and other water purification problems. **Ferri-Floc** does an outstanding job in producing purer process water, and we have reliable technicians to assist you at any time. Let us send you complete information on **Ferri-Floc.**

**SODIUM SILICOFLUORIDE**
A white powder or granule (dyed blue if desired) for fluoridation of potable water.

**TENNESSEE CORPORATION**
612-629 Grant Building, Atlanta 3, Georgia

# LICK Your Traffic Control Problem...FAST and EASY

**Only the Dowden Speed Recorder offers these important features . . .**

**Short 10 ft. measuring field** permits fast setup. One officer working alone can be in operation within 5 minutes.

**Electronic accuracy** of the Dowden Recorder guarantees effective use. Your court will readily accept evidence obtained by use of the Dowden Recorder.

**No lengthy pre-use training** is required. The simplicity of operation makes an expert of any officer after 1 hour "checkout".

**Completely portable,** the Dowden Recorder is as convenient to handle as your First Aid Kit. No field adjustment or calibration is necessary.

**Select any vehicle** in the field, **day or night.** The unique Dowden circuit records from either or both directions without complicated switching or adjusting.

**FULL ONE-YEAR GUARANTEE COVERS EVERY DOWDEN RECORDER.**

POLICE
STOP
DEPT.

STOP SIGN . . . *automatically stops violator.*

REMOTE CONTROL . . . *pistol grip used in place of panel controls.*

- **Light and buzzer automatically signal violation.**
- **Large 5½" dial . . . definition to ½ M.P.H.**
- **Durable steel road tapes practically invisible to traffic.**

The Dowden Speed Recorder is manufactured and distributed nationally by:

**NATIONAL RECORDERS**
7646 LYNDALE AVENUE SOUTH
MINNEAPOLIS 23, MINNESOTA

## FREE catalogs

**Write to address given or circle corresponding number on free post card on page 55.**

### Park Your Car in a Minit

**530** They're doing it in Syracuse, Philadelphia, and New York — parking cars in all-electric elevator Minit Park garages where floor leveling, sidespotting and positioning in each stall are all precise and automatic. Write MINIT PARK GARAGE CO., 420 LEXINGTON AVE., NEW YORK 17, N. Y.

### New Pipe Jointing Material

**531** NATIONAL CLAY PIPE MANUFACTURERS, INC., 1028 CONNECTICUT AVE., WASHINGTON 6, D. C., announces availability of full details on new resilient factory-made compression joints on vitrified clay sewer pipe, which tests prove to be equally as chemically inert to gases and acids as the pipe itself.

### Prefabricated Street Sweeper Broom

**532** It's easy as one, two, three to get your street sweeper rolling with a new broom when Radax prefabricated brooms are used. Let RYNAL CORP., 114 ST. JOSEPH ST., ARCADIA, CALIF. tell you all about it.

### Cushman's Improved Truckster

**533** These lightweight hauling vehicles now come equipped with new, more powerful die-cast aluminum engines. For details on the engines and other improvements and for Cost Analysis Report, write CUSHMAN MOTORS, 1022 N. 21ST, LINCOLN, NEBR.

### Long-Life Pavement Markings

**534** *Catalog* P-160 will provide full information on pavement markings with Cataline reflective striping, a formulation based on Parlon chlorinated rubber and Cataphote waterproof reflective traffic beads. Write CATAPHOTE CORP., TOLEDO 10, OHIO.

### Police and Fire Badges

**535** The trend in service badges is toward the custom-designed, so that now these badges not only identify they also reflect the individuality of the department and historical background. For complete information, write V. H. BLACKINTON & CO., INC., ATTLEBORO FALLS, MASS.

### It Adds to Revenue

**536** . . . and it's good public relations to have metered off-street parking lots and garages equipped with coin changing machines. Over 50 cities have found this to be so. For details, write STANDARD CHANGE-MAKERS, INC., 422 E. NEW YORK ST., MINNEPOLIS 2, IND.

### Containerized Refuse Collection

**537** PAK-MOR MFG. CO., 1123 S. E. MILITARY DR., P. O. BOX 14147, SAN ANTONIO, TEXAS, has issued a folder which gives particulars on its Handi-Lift, a flexible container system that assures fast, easy operation of refuse collection and works in conjunction with Pak-Mor refuse bodies.

### To Sweep a Cleaner Street for Less

**538** Why not find out about Wynene 18, a polyolefin broom filler especially engineered for rotary street-sweeping brooms by The National Plastic Products Co. For features, specifications, qualities, details, write FREDERICK H. CONE & CO., INC., 181 FRONT ST., NEW YORK 38, N. Y.

### Flow Recording Instruments

**539** *Sparling Equipment Bulletin* 315 is important reading for water and sewage works men. It describes the functions, applications, construction and performance features of an improved line of flow indicator-totalizer-recorders. Available from HERSEY-SPARLING METER CO., 225 N. TEMPLE CITY BLVD., EL MONTE, CALIF.

### Protect, Enhance Turf Areas

**540** Automatic sprinkler systems free labor crews, reduce shrubbery loss, keep lawns healthy and green. RAINY SPRINKLER SALES, division of L. R. NELSON MFG. CO., PEORIA, ILL., and NATIONAL RAIN BIRD SALES & ENGINEERING CORP., P. O. BOX 547, AZUSA, CALIF. can provide information on turf valves and underground sprinkler systems.

### New Telemetering System

**541** *Bulletin* 17-12 gives full details on this new, 2-second cycle, all-electronic telemetering system which eliminates mercury switches and synchronization problems. THE FOXBORO CO., 954 NEPONSET AVE., FOXBORO, MASS. reports that modular construction makes maintenance "plug-in" simple.

### Good Lighting Fights Crime

**542** Numerous cities report significant success in their fight against crime, accidents and delinquency through installation of effective street lighting. HOLOPHANE COMPANY, INC., STREET LIGHTING DEPT., NEWARK, OHIO, will send details on a "Fight-Danger-with-Light" Program.

*(See page 66 for more Bulletins)*

LONGER SIGHT...
SHORTER HEIGHT
No. 211

**Only the NEW DIETZ**

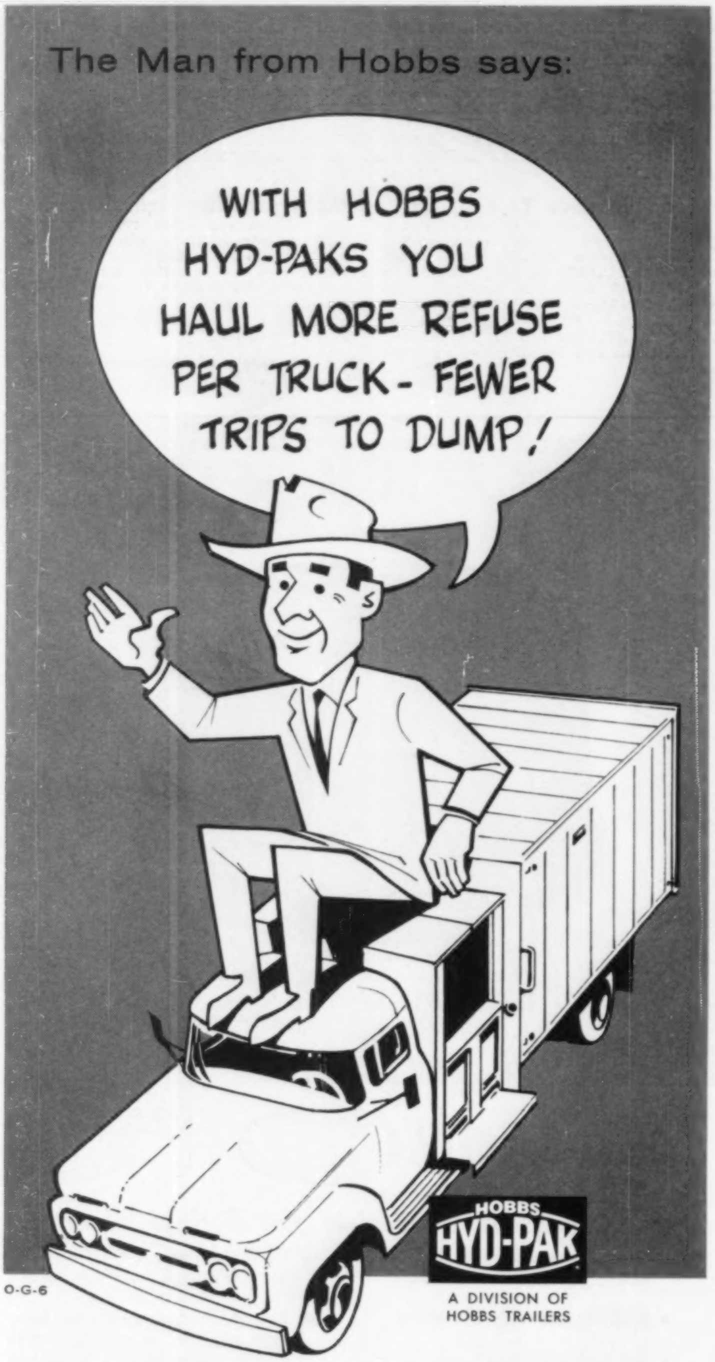
**REVOLVING LIGHT gives you all these advantages**

- Greater lens area—complete 360° visibility over greater distances
- Lower height—only 8¾ inches
- The frequency beam can be 30, 60 or 120 per minute according to number of sealed beam bulbs installed—one, two or four bulbs respectively.
- Dome lens easy to remove—only necessary to remove one brass bolt
- Rust-proof chrome-plated brass base and lens rim mounts on thick rubber pad—conforms to contour of car roof
- Shock-resistant lucite dome available in red, amber, blue or clear.

*Go DIETZ and you go Safely*

**Write for complete details**

**R. E. DIETZ COMPANY, 225 Wilkinson St. Syracuse 1, New York**


The Man from Hobbs says:
WITH HOBBS HYD-PAKS YOU HAUL MORE REFUSE PER TRUCK - FEWER TRIPS TO DUMP!
HOBBS HYD-PAK
A DIVISION OF HOBBS TRAILERS

O-G-6

The BIG DIFFERENCE is in the capacity ratings. With a "16-yard" Hyd-Pak, you get 16 yards in the main storage compartment, where refuse can be completely compressed. The three-yard loading hopper is not even counted (though it can be filled and used to transport refuse at the end of a run). Before you buy refuse collection bodies, you should see this true capacity in action. We'll be happy to arrange a demonstration. Just write or wire:

HOBBS HYD-PAK • 609 North Main • Fort Worth • Cable HOBBSCO

# *FREE catalogs*

**Write to address given or circle corresponding number on free post card on page 55.**

## For Healthier Grass Areas

543 One key to better looking, healthier turf is an efficient irrigation system. BUCKNER MFG. CO., INC., P. O. BOX 232, FRESNO 8, CALIF., will send full-fact literature on sprinklers and sprinkler systems that will keep municipal green areas attractive at low cost.

## When Is Boring Not a Bore?

544 When it eliminates trenching, cuts costs up to 90%, assures low-cost pipe installation. HYDRAUGER CORP., LTD., 681 MARKET ST., SAN FRANCISCO 5, CALIF., has prepared a booklet that shows relative costs and speeds of boring as well as specifications of various Hydrauger earth boring tool models.

## Compacts Asphalt and Soil

545 This 2-ton vibratory roller produces compaction to equal static rollers weighing 8 tons. It can work in close places and shifts easily from static to vibratory action. For facts on Vibrapac, write ROSCO MFG. CO., ROLCOR DIV., 3118 SNELLING AVE., MINNEAPOLIS 6, MINN.

## Vacuumized Street Sweeping

546 With this technique of street sweeping, dirt is lifted from the pores and crevices of the pavement; no dust nuisance is created; no water is used. Streets are left extra-clean. G. H. TENNANT CO., 751C N. LILAC DRIVE, MINNEAPOLIS 22, MINN., will supply details.

## When Out Looking

547 . . . for buried pipe, cables, mains and laterals and when trying to detect water leaks, you'll find the LC-5T a versatile, sensitive, transistorized instrument that easily pinpoints its quarry. Write THE GOLDAK CO., INC., 1544 W. GLENOAKS BLVD., GLENDALE 1, CALIF.

## This Materials Spreader

548 . . . will help your crews speed summer construction jobs, dust control and soil stabilization operations and it will handle winter ice control problems faster, safer, more efficiently. It is described in detail in current catalog from SWENSON SPREADER, LINDENWOOD, ILL.

## Adjustable Valve Boxes

549 Among the full complement of service and roadway boxes, manhole rings and covers described in literature from OPELIKA FOUNDRY CO., P. O. BOX 326, OPELIKA, ALA., are 2-piece sliding or screw type cast iron valve boxes and 3-piece boxes with bases for 4-24" valves.

## Waste Receptacles

550 By writing to JOHN WOOD CO., SUPERIOR METALWARE DIV., ST. PAUL, MINN., you can obtain literature on a complete line of sturdy, easy-to-maintain waste receptacles for both indoor and outdoor municipal applications. Models, colors, sizes, etc. included.

## Water Heating Equipment

551 PERMAGLAS DIV., A. O. SMITH CORP., KANKAKEE, ILL., has compiled a full line catalog of commercial water heating equipment. Of particular interest to municipalities and consulting engineers will be those on swimming pool heaters and large water heaters.

*(See page 68 for more Bulletins)*

# Turn more jobs into low-cost jobs with new John Deere 1010 Wheel Power

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New "1010" wheel tractors are engineered for all-around service, designed as the low-cost answer to earthmoving, material handling, landscaping and utility work. New 40 h.p. four-cylinder gasoline and Diesel engines operate efficiently through the full throttle range for top performance on any job. Deere equipment, including loaders, backhoes, rear blades, landscape tools and mowers provides full versatility.

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### Talk About Fire Fighting Equipment

553 . . . and American La France can tell you about everything you'll need to fight a fire. What's more it will provide literature on a full range of equipment—from aerial ladder trucks to fire extinguishers. Write AMERICAN LA FRANCE, DIV. OF STERLING PRECISION CORP., ELMIRA, N. Y.

### Air Pollution Control

554 Useful new ideas and product information for municipalities concerned with the problem of air pollution can be obtained from JOHN WOOD CO., AIR POLLUTION CONTROL DIV., 12 NICOLET AVE., FLORHAM PARK, N. J., which also makes available an air pollution preliminary analysis kit and engineering assistance.

### Steel Safety Barricades

555 Guard-Gates are reflectorized temporary warning devices for use on highway or in-city traffic emergencies, for construction projects, for hazard-warning applications. They are compact and practical. Write WEST SIDE IRON WORKS, INC., 327 FRONT AVE., N. W., GRAND RAPIDS 4, MICH.

### Positive Key Control

556 A 16-page booklet, available from P. O. MOORE, INC., GLEN RIDDLE 18, PA., describes a system of key control that municipal departments, hospitals, schools, public buildings, will recognize as offering maximum security, being convenient and flexible to meet individual needs.

### Steel Marinas

557 Features, construction details, and installation photos of up-to-date all-steel marinas are given in the *Modern Marina* brochure, published by STANDARD STEEL PRODUCTS MFG. CO., DEPT. A, 2836 S. 16TH ST., MILWAUKEE 15, WIS.

### Elevated Water Storage

558 If water storage or water handling is your concern, you'll want to get the latest information on PDM elevated steel tanks, standpipes, reservoirs and steel structures for water filtration and purification, from PITTSBURGH-DES MOINES STEEL CO., NEVILLE ISLAND, PITTSBURGH 25, PA.

### Looking for the Best Answer

559 . . . to your waste disposal problem? Then you've got to consider incineration. MORSE BOULGER, INC., 80 FIFTH AVE., DEPT. 24, NEW YORK 11, N. Y. has had over 70 years' experience in the field and can provide needed services and facts on up-to-date incinerators.

### Broken, Leaking Pipes?

560 Repair can be quick, easy, economical and permanent. Let *Booklet* No. 330-BMI supply the facts on Full-Seal clamps which assure pressure-tight permanent repair on broken cast iron or asbestos cement pipe. Write ADAMS PIPE REPAIR PRODUCTS, 2453 MERCED AVE., P. O. BOX 3367, SOUTH EL MONTE, CALIF.

### Projects Speech Over One Mile

561 A transistor-powered portable megaphone Model S-170, really makes your voice heard, develops 16-watt audio output to penetrate high noise levels, has numerous municipal applications. For catalog on the Super-Hailer, write AUDIO EQUIPMENT CO., INC., PORT WASHINGTON, N. Y.

### Climb, Slide, Whirl!

562 Children at municipal playgrounds can do all and dozens of other play activities with fun and safety when Trojan playground equipment is on the recreation scene. For illustrated catalog, write TROJAN PLAYGROUND EQUIPMENT MFG. CO., DEPT. 66, ST. CLOUD, MINN.

### No More Grime, No More Grease

563 A "stop waste program" of GOJER, INC., BOX 991, AKRON 9, OHIO, points out how Go-Jo Creme hand cleaner teamed with the Go-Jo dispenser will make grimy hands at municipal work shops and careless, costly wash-up procedures things of the past.

### Transport Refuse?

564 Then you'll want to peruse the current catalog issued by HOBBS HYD-PAK, 609 N. MAIN, FORT WORTH, TEXAS, which explains why the 16-yard Hyd-Pak refuse collection body enables you to pack and haul more refuse per truck and make fewer trips to the disposal site.

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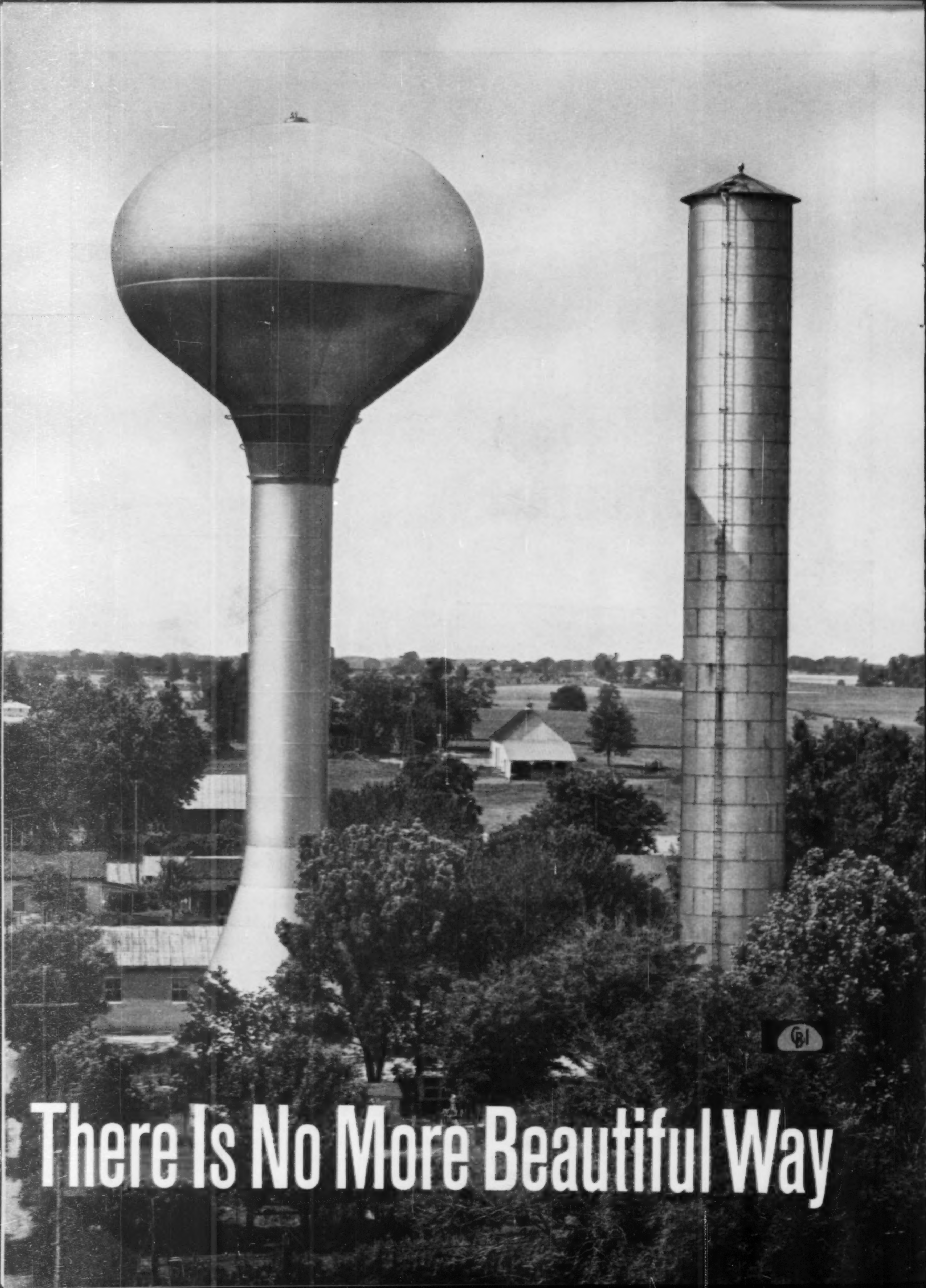
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The remarkable advances in gravity pressure water storage are demonstrated by this dramatic photo showing a modern CB&I Waterspheroid and an old riveted standpipe.

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- Utilization of base for pumping equipment or storage
- Elimination of external ladders
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500,000 GALLON Waterspheroid, at left, has a head range of 37½ feet. The bottom capacity line is elevated 100 feet.

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200,000 GALLON Watersphere, 37'8" in diameter, is elevated 98 feet to the bottom. Watersphere capacities range from 25,000 to 250,000 gallons.

500,000 GALLON Waterspheroid draws attention to a modern community. Waterspheroids have capacities from 200,000 to 500,000 gallons.

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APRIL 1961

The American City

# Everything New But the Supply

## Milwaukee's multi-million-dollar program includes new facilities from intake to finished water delivery

By **WM. HAMMANN***

Milwaukee's second tap to Lake Michigan will more than double the city's present water supply capacity of 290 mgd and the first stage of a new treatment plant will add 100 mgd to our treatment capacity. The overall design includes future extensions to bring total capacity up to 300 mgd—the capacity of the intake. Our multi-million dollar program also includes a raw-water pump station and delivery line, new transmission lines, and new mains to strengthen the system and extend service to outlying areas of the city and to certain other adjacent communities.

### Stage Construction

We are using stage construction where possible and, in the case of large mains designed to serve outlying communities, actual work depends upon the successful negotiation of long-term contracts with the communities involved. Nevertheless, in the five-year period ending in 1962, we will have invested more than $35,000,000 in the water supply program.

### Big Pipe

The intake, already completed by Merritt-Chapman & Scott, Inc., extends about 7,600 feet into the lake to a depth of 55 feet. It consists of sixteen-foot sections of 108-inch Lock Joint reinforced-concrete subaqueous pipe, fabricated at South Beloit, Ill. The pipe rests on large wooden

*With divers waiting below, a length is lowered into position. The intake extends 7,600 feet into Lake Michigan and terminates under 55 feet of water.*

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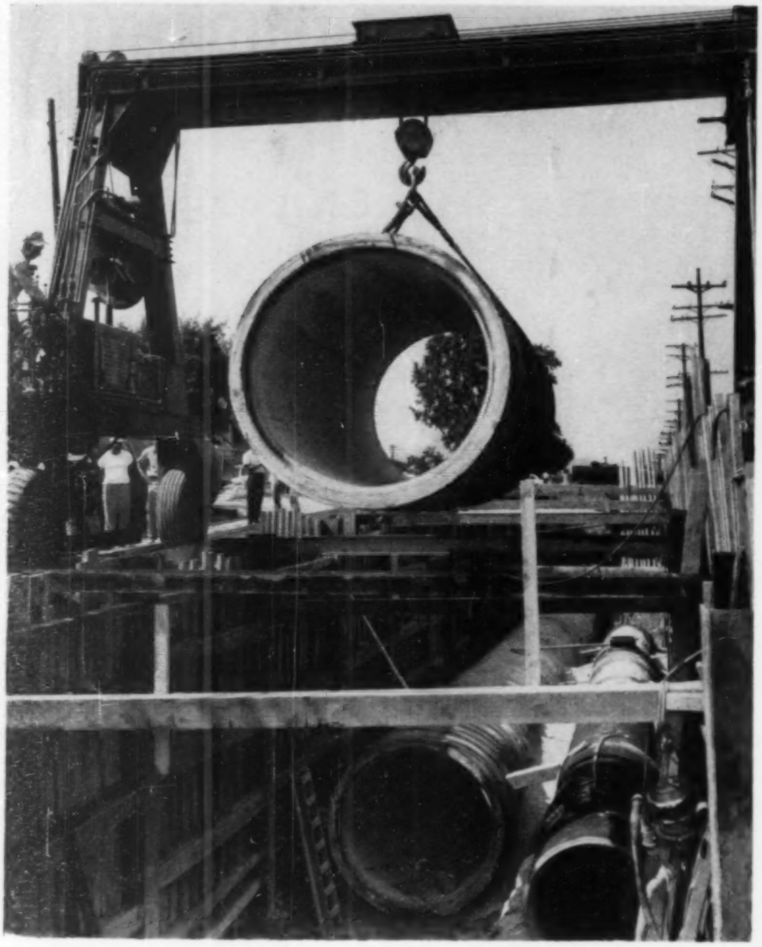
* Mr. Hammann is a member of the city engineer's staff, serving as engineer in charge of water engineering.



*This mobile gantry crane picks up the 84-inch and 48-inch pipe from the storage area, straddles the trench and lowers it into place. Note the excellent view the operator has of the work.*

sills driven to proper grade in a 15-foot trench excavated in the bed of the lake. After the pipe was laid, the trench was backfilled.

Trucks delivered the pipe to an area near the contractor's dock. Here two sections were joined into a single 32-foot, 68-ton unit by drawing the joint rings together and welding them. After welding, workmen filled the inner and outer joint spaces with mortar. This procedure reduced underwater work by 50%.

Actual laying consisted of placing a thoroughly lubricated round rubber gasket into the circumferential groove on the spigot ring, lowering the section in place, and bolting it to the section already in place. Opposing lugs set in the exterior wall at each end of the pipe section were kept precisely on the spring line of the pipe, as it was lowered, so that they would match the lugs on the section previously installed. Divers guided the bell around the spigot of the pipe in place and then slipped a large bolt through the holes of the matching lugs on each side of the pipe. Tightening the nuts on these bolts drew the pipe home. The small tolerance between the outside diameter of the spigot ring and the inside diameter of the bell ring caused the rubber gasket to be compressed, forming a flexible but water-tight joint.

## Intake

The intake terminates with a reinforced-concrete inlet bend placed in a steel crib surrounded by precast concrete blocks.

Approximately 3½ miles of 84-inch-diameter Lock Joint prestressed concrete pipe with embedded cylinder will transport the raw-water from the pump station to the treatment plant. We divided this work into theree sections and awarded the first section to W. J. Lazynski Co. of Milwaukee and the second section to Tomaro Contracting, Inc. of Cudahy, Wis. A third section also was recently awarded to the latter firm.

To lay the 21-ton pipe sections, Lazynksi is using a 30-ton-capacity Travelift, a machine most commonly used to handle concrete girders at prestress plants. This overhead crane carries the pipe from the stockpile area to the trench and then lowers it into place. The operator has a constant view of the pipe. Since the crane straddles the trench, it does not block the access road alongside.

In addition to laying 7,000 feet of 84-inch pipe, Lazynski's contract calls for placing some 2,600 feet of 48-inch prestressed concrete pipe in the same trench. This line will carry treated water from the plant to a point in the distribution system. It is being laid on a natural earth shelf adjacent to the larger line.

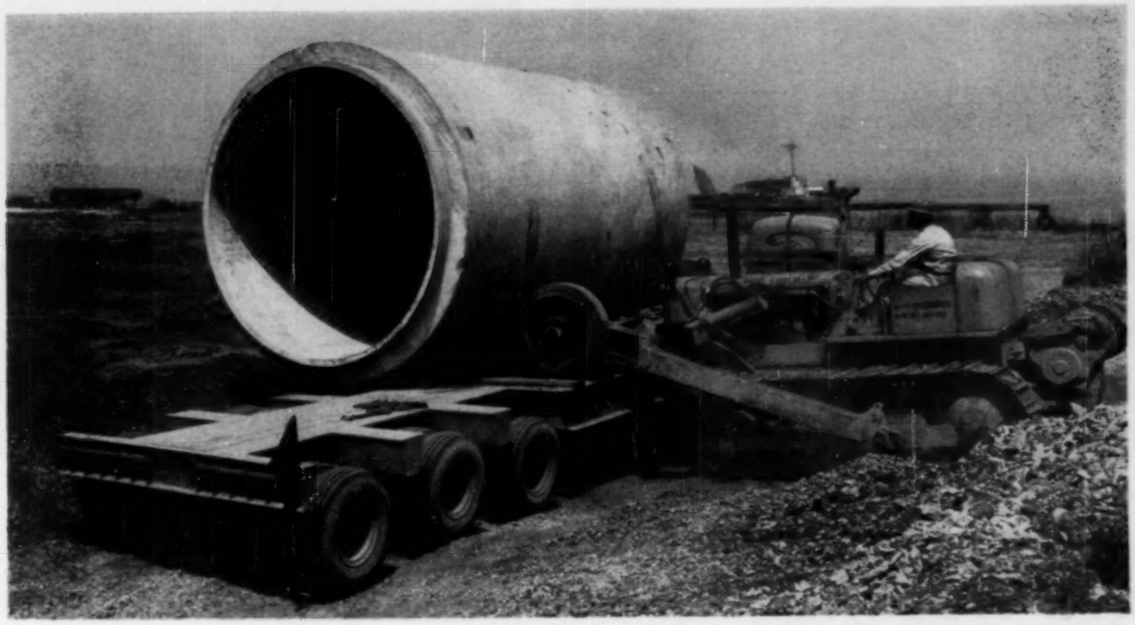
## Bomb-Proof Station

The design and location of the raw-water pump station takes into account the possibility of air attack. Built into the bluff along the shore of Lake Michigan, the blast-resistant building has no windows, only one large door and three service doors. Operators at the new treatment plant will control the operation of the station from a panel in the chemical building. The station will also contain chlorination equipment for use in case the treatment plant is damaged. Should such an event occur, we can still pump chlorinated water into the mains.

The initial pumping equipment includes four Allis-Chalmers vertical turbine type pumps each rated at 24,500 gpm at 150-foot head, driven by 1250-hp water-cooled, synchronous motors. The design provides for the addition of four more units when needed. Check valves will be of the cone type and butterfly valves will serve as shut-off and throttling valves.

Work started on this part of the program in November 1959 and is scheduled for completion by September 1961.

The largest single item in the program is the treatment plant. The first stage, to be completed in 1962, will cover an area of 20 acres. Basic units include a rapid-mix basin, four coagulation and settling basins, eight filters and a 15,000,000-gallon clearwell. A combination high- and low-service pump station is included in



***Trucks hauled the 16-foot-long intake pipe sections to the contractor's dock where they were unloaded by this specially equipped Allis-Chalmers tractor.***

***Accuracy was the word in joining the two sections into a 32-foot length. Here the lugs are aligned to insure a true fit when it is under water.*** →

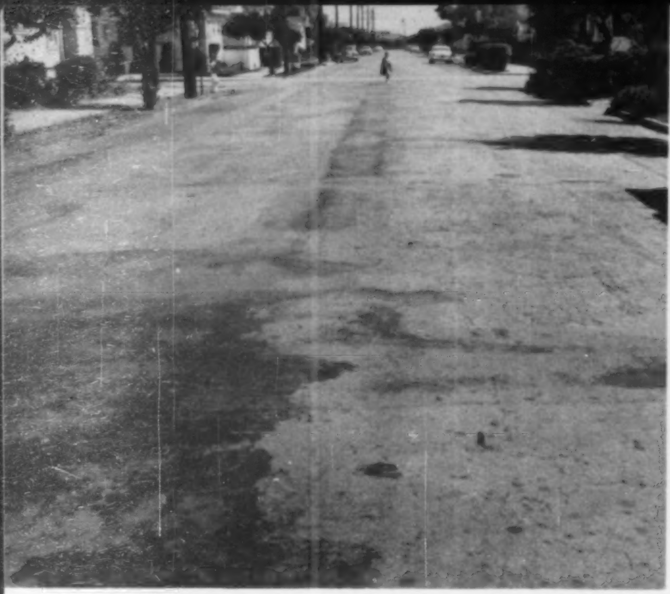
the program. These facilities will be described in more detail in a separate article.

The basic program carries a price tag of about $18,000,000. Contract prices for the intake and raw-water pump stations amounted to $3,486,000 and $2,074,000 respectively. We estimate the raw-water line to the treatment plant will cost about $3,500,000, with the treatment plant taking up the balance.

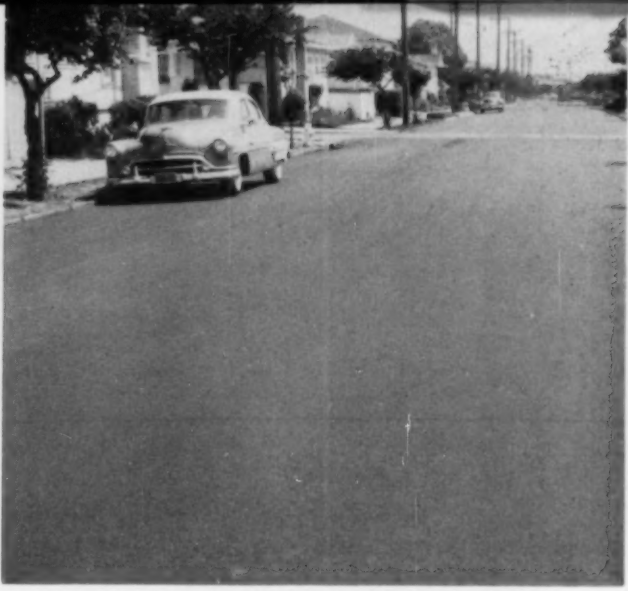
Included in the $35,000,000 figure previously mentioned are numerous additions to the distribution system. Projects already completed include about 4½ miles of 54-inch pipe running from an existing pump station westward through the city and about 4½ miles of 42-inch pipe in the northwest section of the city which will connect to a proposed booster station. Another major project proposed for the future consists of 5 to 5½ miles of 54-inch line to complete a transmission loop in the north section of the city. Finally, about 6½ miles of 48-inch and 60-inch pipe will be installed to connect the new treatment plant with the present system. Most of this work is being financed by revenue bonds.

The entire program was developed under the guidance of Commissioner of Public Works Lloyd D. Knapp. Eugene A. Schmidt, the city engineer, maintains overall supervision of engineering and construction with the writer serving as project engineer. Arthur Rynders is superintendent of the Milwaukee Water Works.

The city engaged the consulting engineering firm of Black and Veatch, Kansas City, Mo., to design the intake, pumping stations and treatment plant. Our own engineering staff designed the raw-water transmission line and the other transmission and distribution-main work. ◄◄



*Before leveling—gutterfilling has been completed but note the surface breaks in the center of the street.*

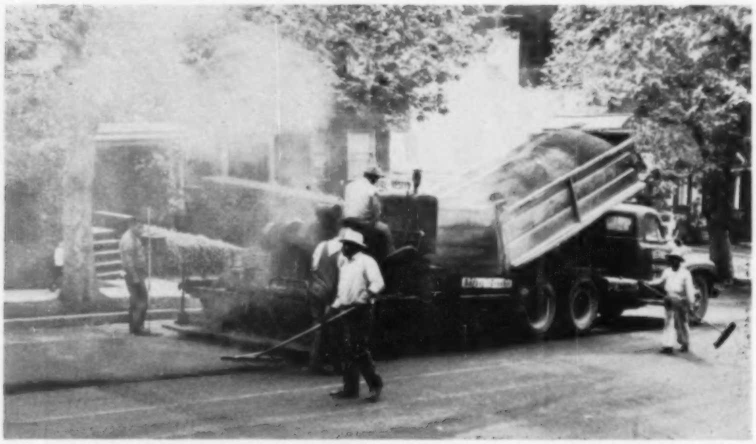


*After leveling—the one-inch paver-laid application of asphalt provides a tight, uniform street surface.*

# We Reconstruct Minor Streets

## . . . by a program of preventive maintenance that goes much farther than just filling holes

By **S. C. JACKA** and
**C. J. GAGNON***
Berkeley, Calif.



*As it discharges a one-inch layer of hot-mix, paver pushes a loaded truck ahead.*

Life may begin at 40—but not for streets. Most of Berkeley's residential streets are now more than 40 years old and suffer from old age. These roads were originally built prior to annexation, which with one exception, was completed before 1921.

The original streets consisted of a rock macadam. Subsequently, an oil penetration was applied to the rock to form an asphalt-bound macadam surface approximately six inches thick. This macadam surface has served comparatively satisfactorily on the minor city streets as is demonstrated by their longevity. As failures occur on those now classified as major streets, they are rebuilt to meet current load requirements under the city's major street replacement program. Minor city streets totaling 150 miles, however, still exist, which do not qualify for such construction improvement. Most of these streets carry less than 1,000 vehicles per day, with many under 100, and are rarely subjected to heavy truck loads.

Observation of the condition of these local streets indicates that the basic metal has not failed extensively but the oil surface has leached and deteriorated. Maintenance costs are starting to pyramid as breaks occur in the surface.

Topographically the city is divided into two areas. The hillside is fairly steep with narrow, winding streets traversing the contours of the hills. A few streets climb the hills more or less directly. The level area of the city is laid out in a rectangular pat-

---

* Mr. Jacka has nine years tenure as Director of Public Works; Mr. Gagnon, assistant director, is secretary-treasurer of the East Bay Engineers' Club.

Gutterfilling on Mathews Avenue corrects high curbs and drainage problems.

With completion of the leveling course rolling, Mathews Avenue will be virtually maintenance-free for many years.

tern with streets being wide enough for two lanes of parking and two lanes of traveled way. In most cases the streets were designed with high crowns and tall curbs which provide a channel for the high-intensity storm-water run-off. In 1946, the sanitary sewers were separated from the drainage system and some storm sewers were extended, thereby reducing the need for the streets to carry large volumes of storm waters.

## Leveling and Gutterfilling

As a result of the poor surface conditions and the fact that many of the streets no longer had to carry heavy rainfall run-off, we established a maintenance program in 1949, wherein we cover the traveled portion of the street surface with a thin coating of plant-mixed asphaltic material. We call this "maintenance leveling." A second program was instituted wherein the deep street-gutters are filled by placing a layer of asphalt in one pass of a paving machine at the face of each gutter. This program is called "gutterfill." The maintenance leveling course and gutterfill course have proven so successful that we now have a continuing annual program which is financed from the municipal share of state gasoline-tax funds. During the early years of the program the maintenance leveling followed the gutterfill by one year. At present, we are cutting back the gutterfill program as a unit and are including that work in our maintenance leveling. This results in a uniform appearance with a normal crown.

Gutterfilling, whether done separately or as a part of leveling, consists of adding a bituminous mixture to within one inch of grade with a motor patrol. We then lay the one-inch leveling course with a Barber-Greene paver, being careful to leave a vertical curb face of six inches while preserving longitudinal drainage. When completed, the street appeals to drivers because the excessive crown which made control difficult has been removed and automobile doors will open when the car is parked at the curb. Care must be exercised, however, to provide reasonable driveway access as well as to maintain the roof drain outlets in the vertical curb face.

To prepare the street surface for the gutterfill operation, we clean it thoroughly with power brooms, flush it with water and then tack it with a rapid-setting emulsion. One man holds a protective plate on the top portion of the vertical face of the curb while it is being tacked so that the asphaltic material does not spray it. This shield is held in place along a guide line which is struck prior to the tacking operation. During leveling operations we use a similar shield to obtain a straight line with our feather edge. A Barber-Greene paver then lays 108 to 126 pounds per square yard (approximately one inch thick) of the bituminous mixture which is then rolled. The gutterfilling and leveling operations are now combined so that all the work is completed in one season and the entire street surface appears as a complete new paving job.

Our experience indicates that the maintenance leveling of the Berkeley city streets has extended the street life substantially over the past ten years. Very few of the streets which have been leveled have required maintenance patching or a second leveling course. From 1955 to 1960, 50½ miles of city streets were leveled. Gutterfilling during this period cost $76,000, and leveling $384,000, for a total expenditure of about $460,000 or $9,100 per mile. Current leveling costs vary from 50 to 63 cents per square yard, depending upon the terrain and the haul distance involved. We have spent $760,000 on the program since its inception in 1949.

Where extremely high crowns are coupled with the absence of high curbs, we had to find a solution other than gutterfilling or leveling. Therefore, in the 1957-58 fiscal year we established the procedure of "street reconditioning."

This procedure is a refinement of the leveling program and consists of blading the existing surface and base material to one side, excavating and removing excess soil from the street subgrade, relaying the street metal as a base and laying a new one-inch surface of asphaltic material with our paver over the top.

## Leveling

Many of the streets which have been leveled under the program during the past ten years were selected on the basis of their susceptibility to leveling. Some of the streets which were leveled with a one-inch surface will not permit an additional inch in the future without creating access problems. We therefore anticipate that many of the remaining streets will have to be reconditioned by decreasing the excessive crown in the manner described. Since 1957, $60,000 has been spent in reconditioning miles of minor city streets, with an increasing future need of this procedure. Financing of this type of improvement is obtained from the general fund; property owners pay only for revision of driveways, curbs and sidewalks.

The leveling, gutterfilling and reconditioning work has been performed by a ten- to twelve-man crew under the supervision of Henry W. McGraw, public works maintenance superintendent. The crew on leveling work places an average of 500 tons of hot plant-mixed surfacing per day with top production on straight runs exceeding 1,000 tons per day.

The programs were originally conceived for the purpose of decreasing the excessive street-patching costs. This they have done as well as upgrading the overall minor-street system. We have also increased the aggregate surface life of the minor city streets and now have a better appearing surface with substantially improved riding qualities. We consider the investment justified from the results obtained in our ten-year experience. ◄◄

# Christmas Trees Prevent Beach Erosion

A novel sand fence, in action comparable to a snow fence, is reversing beach erosion at Fire Island, a valuable and popular ocean-front playground in the Town of Islip in the New York metropolitan area. Some 68,000 unsold and discarded Christmas trees have been placed three feet apart on the 30-mile-long beach to attract more sand protection by harnessing nature's action of wind and water.

Hurricanes and high winds have been pounding the beach for many years but only recently has the erosion begun to menace the Great South Bay oyster and clam beds as well as a half billion dollars worth of mainland real estate. Douglas Brewster, local shipyard operator, and Herman Hammer, councilman for the Town of Islip, obtained donations of 18,000 trees in early 1960 for the project and 50,000 more trees in 1961.

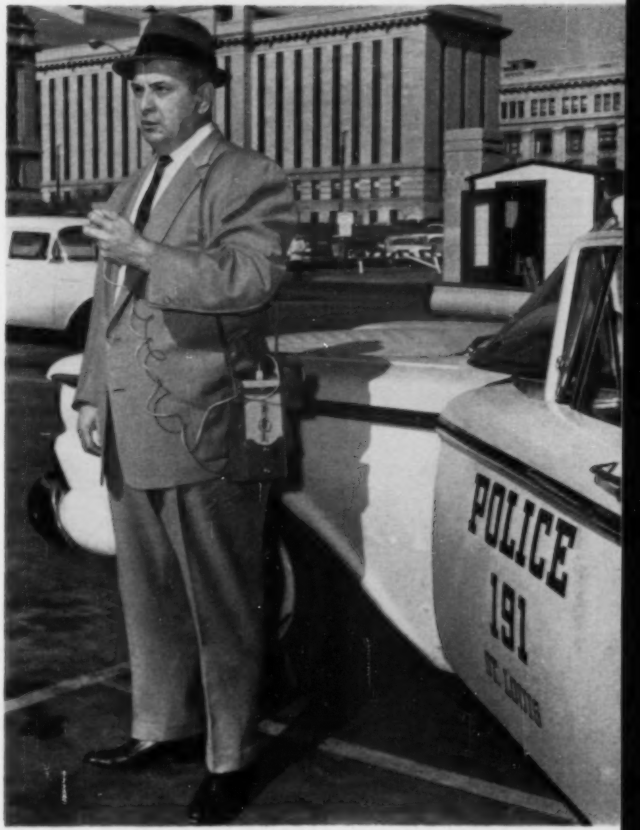
The largest number of trees came from dealers who transported them to locations designated by the New York City Department of Parks and local Long Island officials. From these points the Islip Highway and Maintenance trucks hauled them to the waterfront. Donated ferries and scows, loaded high with trees, made the seven-mile trip to the beach where local residents distributed them as needed along the 30-mile beach.

Placed three feet apart at the bottom of the first row of dunes, the trees became completely covered with sand in a month's time. This year's workers could not find any visible trace of the 1960 trees; sand had completely concealed them.

In the past years the Army Engineers and Suffolk County have spent $40,000,000 pumping sand from the bay on the east end of the island to the critical, washed-out portions of the west beach. Hurricane-spawned winds have combined with water action to remove much of this artificially placed beach material. The newly installed Christmas trees will act as fingers to accumulate and hold the badly needed sand. To reclaim more of the beach for recreational use, local officials intend to continue Operation Christmas Tree indefinitely. ◄◄

***Fire Island residents drag the trees into place on the sloping face of the lowest dunes.***

*Traffic Officer Bentan makes his preliminary report on traffic congestion in rain-swept streets into a phone connected with Televoice recording units; his report is coordinated with other reports recorded centrally from other parts of Tulsa, Okla.*



*In St. Louis, a detective records his impressions of the scene of a crime on the Edison Midgetape, which eliminates note-taking, allows for detailed observation and recaptures the nuances of witnesses' descriptions.*

# Talking Out Police Reports

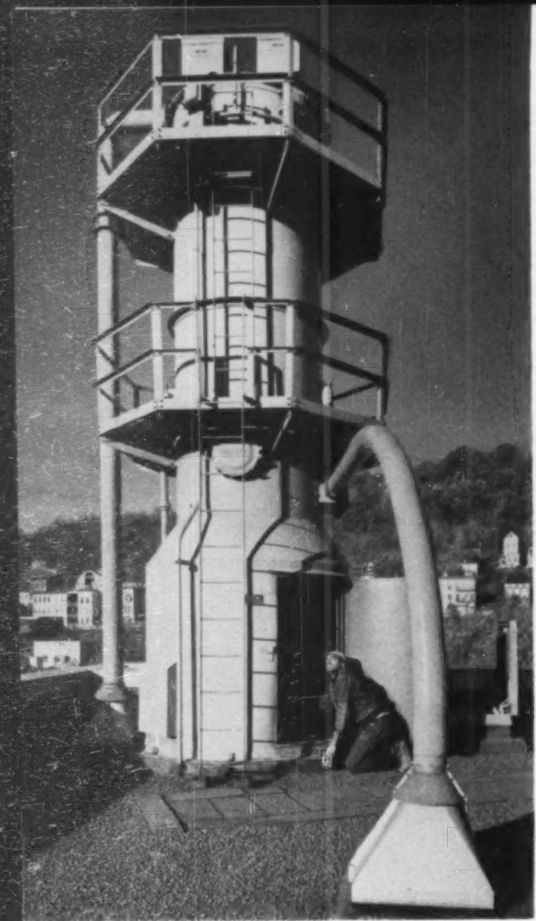
Doomed to join the ranks of famous fast-vanishing American types is that staple of so many detective stories and films, the "man from Homicide" who would peer ominously at the witness and then make long, mysterious entries into his notebook. For the policeman's notebook is no longer adequate to combat the "big business" of modern crime and in its place has come a full-scale utilization of modern dictating-communicating techniques. The methods range from small, individual dictating units for use at the scene of the crime, to remote dictating systems that record reports from anywhere within a police district at any time.

Now, when the "man from Homicide" arrives at the scene of the crime, he jumps from the squad car equipped—not with a notebook—but with a compact recording unit which he uses to record his immediate impressions of the scene, interview witnesses present, and make oral notes. The first picture illustrates this approach.

The police officer spends less time in clerical detail at the scene of the crime and back at the police station. His report is filed right at the scene and is transcribed later by a stenographer. In Los Angeles and Salt Lake City, police dictate reports right from the field. Within six minutes the report can be recorded, transcribed, duplicated and distributed—all without the officer returning to the station.

His investigation completed, he goes to a telephone booth and dials a non-toll number which connects him with the headquarters switchboard. He asks for the tele-recorder unit and is immediately connected to one of the Edison Voicewriter machines. As soon as he begins talking, the machine starts to operate. The clerk typists transcribe each report immediately after dictation.

From an administrative point of view, an official at headquarters can review what is happening in the field an hour behind his men. The method has also resulted in improved press relations for the police department. Reporters at headquarters can be given the accurate facts immediately from one source, without the necessity of "piecing together" a story with possible loopholes. ◄◄

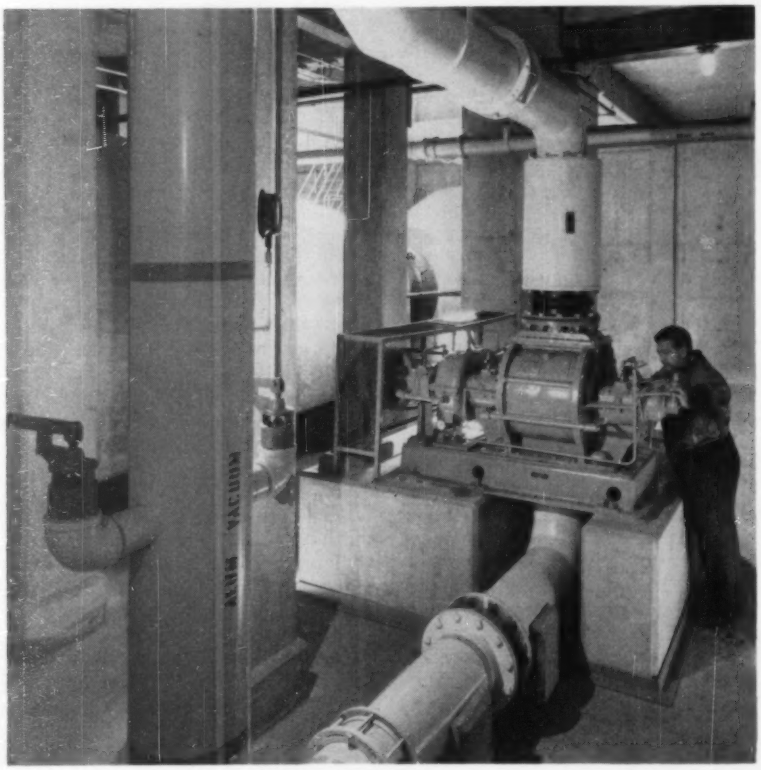


Pneumatic conveyors
in sewage treatment
plants provide one way to . . .

# Keep Chemical Costs Down

By **PAUL EHRENFEST** and **JOHN R. HARVEY***

*The two basic components of the pneumatic alum-handling system at Cincinnati's Mill Creek plant consist of the rooftop receiver (above) and the blower (below) located in the basement of the chemical building.*



Engineeers, in specifying equipment for sewage treatment plants, must consider four basic questions concerning such equipment: Will it give the plant flexibility? Is it economical both in first cost and in operation? Will it perform efficiently? Finally, is the "on-call" performance dependable? In addition, certain facilities must cope effectively with extreme variations in plant volume and be capable of expansion at minimum expense. This includes the materials-handling operations, which must be dependable and keep pace with the operations and processes they serve.

Depending upon whether it is adequate or inadequate, the chemical handling operation may be a boon or bottleneck. The system must be efficient, dependable and economical. Pneumatic handling is one method that meets these qualifications and as a result has gained wide accept-

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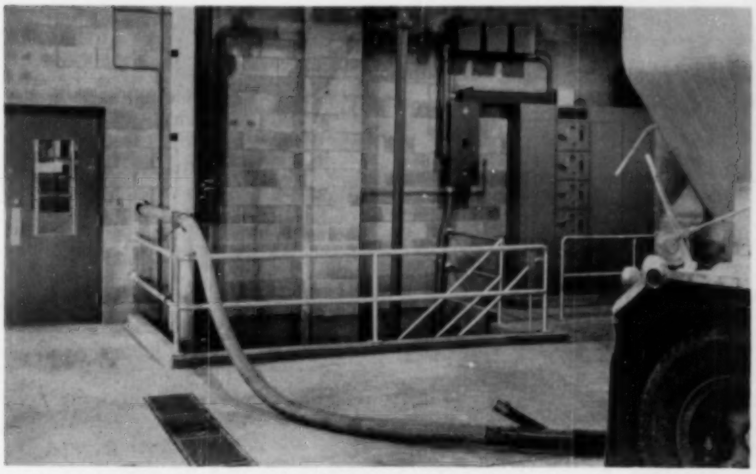
*Mr. Ehrenfest is an associate of Willard F. Schade & Associates, Consulting Engineers of Cleveland, Ohio, and Mr. Harvey is an engineer in the pneumatic handling department for Dracco Division of the Fuller Company, Cleveland, Ohio.



*To unload and store lime at the Mansfield, Ohio, sewage treatment plant one need only attach the intake nozzle to the hopper truck and push the conveyor control button. Note the cleanliness of the operation.*

→

*This manually operated three-spout distributor in the Grand Rapids plant delivers lime to one of two storage bins or directly to the chemical feeder.*

ance in the industry. Completely enclosed, the conveyors perform a variety of jobs, moving materials anywhere at mile-a-minute speeds, yet keeping dust out of the atmosphere. Generally, air conveyors are less expensive to install and can pay for themselves quickly by permitting material economies.

## One-Man Operation

In the typical treatment-plant operation, a pneumatic conveying system handles three jobs; unloading, storing and moving chemicals to process. Usually, one man controls the semi-automatic operation by push-button from a central panelboard.

Once the appropriate conveyor lines have been coupled, the press of a button starts conveying action that will simultaneously empty and store material from a 50-ton hopper-bottom chemical car in five to eight hours. Barges, trucks or box cars can be unloaded with equal proficiency.

To divert flow from a storage bin to process, or directly to process from the unloading area, the operator merely switches conveyor lines. There is no manual bag handling, double handling from storage to process, or waste from broken bags or dust. Valuable material dust stays within the system where it is collected for reuse. Another advantage is that it keeps moisture from reaching any hygroscopic material handled. The pneumatic system successfully conveys the half-dozen dry chemicals generally used in sewage-treatment processing. These include lime, powdered ferric chloride, ferrous sulfate, ferric sulfate, and alum.

While the one-man operation results in reduced labor costs and salvage and use of dust saves chemicals, a third and very significant saving is realized through bulk purchasing. With a $3- to $5-per-ton cost difference between bagged and bulk chemicals, savings can quickly mount to five figures. In addition, large-unit quantity purchases such as a 50-ton-capacity hopper car may also reduce freight costs.

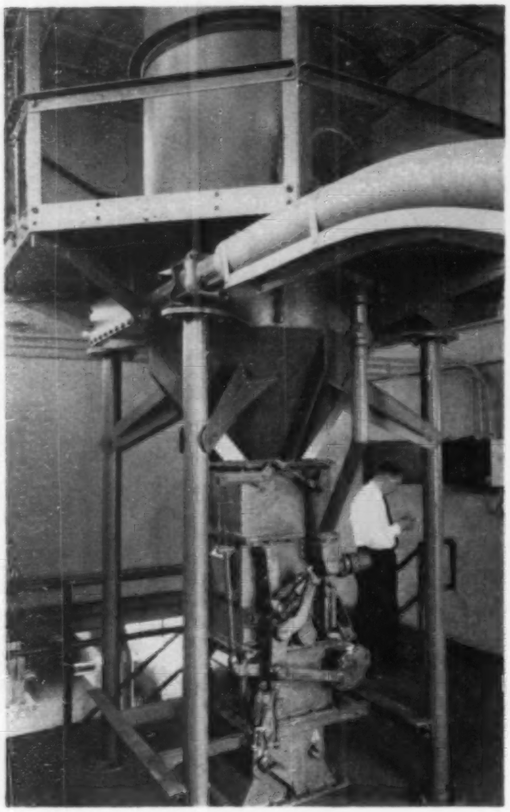
Small plants can also save through bulk chemical handling. Archbold, Ohio, population 1,486, purchased only one truckload of lime every six to eight weeks for use at the water treatment plant. By purchasing a Dracco Airstream Conveyor System and installing it as original equipment in a new addition to its water plant, the city switched to bulk buying and handling at a savings of 16% on material costs. The system moves lime from truck to storage, from storage to day bin, or directly from truck to process.

Since pneumatic conveyors are not limited by walls, corners or distances, they can be run almost anywhere. Conversely, they go through walls, over rooftops, underground, and, generally, are able to enter areas often inaccessible to mobile or mechanical handling equipment. Air-conveying systems have moved materials as far as half a mile.

## Take Little Space

Designed around individual plant requirements, they become completely integrated with operation and take up surprisingly little space—actually no more than the space of a six- or eight-inch pipe. Basic equipment, including receiver-filter, blower, motor, muffler and switching station, usually occupies no more space than 100 square feet.

Easily expanded to grow with the



***Middletown, Ohio's single receiver-filter can receive lime and alum consecutively, for the self-cleaning action of the conveyor prevents intermixing. The three-stage gate lock below the storage bin is designed for use with abrasive materials.***

plant, the conveyor components can be located in otherwise unused areas such as roofs, basements, tunnels and exteriors. Also, construction economies can be realized in the case of original installations. Material storage rooms and under-track unloading pits, for instance, are unnecessary with pneumatic handling. Systems operate on suction or pressure action or a combination of both. Consequently, a single system can handle several operations.

## Minimum Maintenance

With a minimum of moving-parts, maintenance seldom exceeds routine requirements of blower lubrication and periodic equipment inspection.

One example is the Southerly Sewage Treatment Plant in Cleveland where for 23 years a pneumatic conveyor system handled lime without a major breakdown. Maintenance requirements consisted of routine lubrication and replacement of a worn-out part.

The following brief descriptions of seven actual installations illustrate the adaptability of the pneumatic conveying system to various uses in a variety of sewage treatment plants.

*Cincinnati, Ohio.* Mill Creek, one of the most modern sewage treatment plants in the country, employs two separate systems to unload and store lime and alum. One system conveys alum from a railroad siding to the storage bin in the chemical building, a distance of 800 feet. At the rate of five tons per hour, alum passes through the line located in an underground service tunnel, then up 60 feet to a rooftop receiver over the storage bin.

The pebble lime handling system, located in the sludge-disposal building, unloads from a nearby siding at a faster rate. It transports material from hopper and box cars or trucks to a rooftop receiver at the rate of nine tons per hour. A screw conveyor transports the material from the receiver to storage in one of three bins.

One man, aided by push-button control, operates both systems serving this 120-mgd sewage treatment plant.

*Grand Rapids, Mich.* The lime-handling facility in this plant was integrated with an expansion program. Located in a new building beside a railroad siding it conveys material from box or hopper cars to a rooftop receiver. From the receiver the lime drops into a three-spout distributor that directs flow to either of two storage bins or directly to process. Lime going to process from storage first returns to the receiver by way of the conveying line leading from the storage bin hoppers. High- and low-bin level indicators signal the operator when the bins are full or in need of filling.

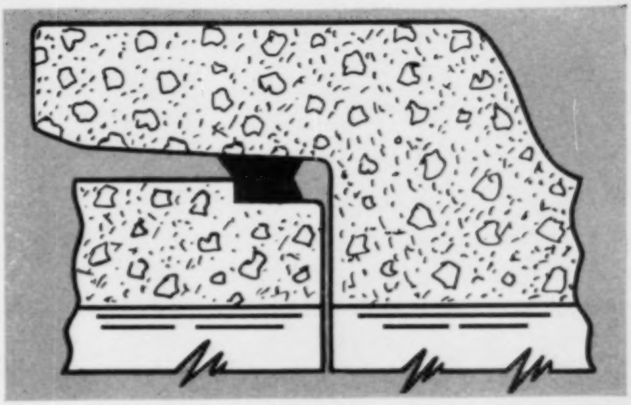
*Mansfield, Ohio.* This newly completed $4,000,000 plant serves a population of 51,000 people. Average flow is 15 mgd, maximum 25 mgd. The pneumatic conveyor system unloads from trucks to a receiver on top of the lime-storage hopper at the rate of 7½ tons per hour.

*Dubuque, Iowa.* The suction-pressure system in this plant performs multiple conveying duties. An underground line conveys lime 280 feet from hopper cars to the plant where it is distributed to a main storage bin or to two-day bins. The system also moves lime from storage to the day bins as needed. All dust generated in conveying is collected and reused.

*Sayreville, N. J.* High-speed conveying is the principle feature of the handling system at the Middlesex County Sewage plant. Installed in 1956 to unload and store pebble lime and copperas, it conveys at the rate of ten tons per hour. Flow to any of the four storage bins (two for each chemical) is accomplished by coupling the receiver line to the appropriate bin line at a switching station. A multi-cloth-bag dry-collection system keeps the bins dust-free.

*Middletown, Ohio.* Although not located near a railroad siding, this ten-mgd plant enjoys the advantages of bulk handling and buying. Hopper-bottom trucks transport chemicals from source of supply to the plant, where they are unloaded by air conveyor at the rate of 7½ tons per hour. One man devotes only part of his time to the operation.

*Warren, Ohio.* A two-way dust control system, integrated with a pneumatic conveying system will provide extra material savings as well as a clean plant at this new installation. Unloading speed will be at the rate of ten tons per hour. Lime will flow from trucks to the first-floor receiver from which it will be diverted under pressure to one of three bins via a switching station. A filter on the second-story roof will collect the dust. It will drop by gravity into the receiver below for reuse. A second filter will collect dust generated during unloading and return it to the bins. ◄◄



*The rubber gasket is placed over the recessed portion of the spigot end of the pipe and is compressed when the two pipe sections are pushed together. This sketch is not drawn to scale.*

# Rubber Gasket Controls Infiltration

By **DON WEBSTER***

Infiltration problems in its existing sanitary sewer system led officials of Hales Corners, Wis., a largely residential Milwaukee suburb, to try the new mechanical-joint sewer pipe in an extension to its system. Reduced infiltration would affect great economies in operating expenses, for much of the sewage is pumped to the treatment plant.

Though the original specifications did not include concrete sewer pipe with rubber gasket, further study and consideration indicated that this combination would produce excellent results. Upon the approval of the Village Board, Director of Public Works Elmer Faehrman, and the Metropolitan Sewerage Commission of Milwaukee County, we requested the contractor, W. J. Lazynski of Milwaukee, to try concrete pipe with a rubber gasket on a portion of the work for which contracts had already been awarded. This procedure would test the relative performance of two materials in reducing infiltration and would also mark the first time that concrete pipe had been used in the village sanitary-sewer system.

## Good Performance

The concrete pipe section, with rubber gaskets, consisted of 3,222 lineal feet of eight-inch pipe and 193.6 vertical feet of 42-inch-diameter precast reinforced-concrete manholes. The Waukesha Cement Tile Company of Waukesha, Wis., furnished the pipe. The pipe and rubber gasket conformed to ASTM Specification C-14 and C443-59T respectively. The spigot end of the pipe had a recess to receive and contain a Rexon type "K" rubber gasket as manufactured by Hamilton Kent Mfg. Co. (see the drawing). Installation proceeded in accordance with the standard sewer-construction practice in this area. Representatives of the manufacturers were on hand to insure proper installation and the workmen followed the recommendations of the material suppliers.

Allowable infiltration for the work was identical to the requirements of the City of Milwaukee. Table I lists the general requirements and the specific requirements for eight-inch-diameter pipe and 42-inch-diameter manholes.

The actual test, conducted by the pipe supplier, was observed by the author, Mr. Faehrman, Dave Waite and John Slattery of the Waukesha Cement Tile Co., Orville Lawler of W. J. Lazynski, and Mr. Price and Mr. Weber of the Metropolitan Sewerage Commission.

The entire 3,222-foot line was tested as a single unit, with the time averaged over six consecutive constant readings. During the test an eight-foot head was noted in the manholes, indicating favorable conditions for a severe test. Table II lists the test results.

Actual infiltration amounted to 54% of the allowable. All persons concerned were highly pleased with the results and the village feels that the use of concrete pipe with rubber gaskets will solve their infiltration problems and do so at a very economical cost.

Accordingly the specifications have been changed to include its use on future sewer extensions as equal sewer material. ◄◄

### Table I

**General and Special Infiltration Requirements**

**General Specification: Allowable infiltration shall not exceed five gallons per day per square yard of inner surface averaged over 100 feet of sewers and at least one appurtenance.**

**Detail Job Specifications:**

| Size | Type | Allowable Infiltration | 3,222-Foot Test Section (incl. 193.6 ft. manhole) | Minimum Time to fill 1-gallon container |
|---|---|---|---|---|
| 8" | Sewer | .0484 gal/hr/ft | 156 gal/hr | 17.3 Sec. |
| 42" | Manhole | .2545 gal/hr/ft | 49.3 gal/hr | |

### Table II

**Infiltration Test Results**

| Test Section | Size | Allowable Time | Actual Time | Allowable Infiltration gal/hr | Actual Infiltration gal/hr |
|---|---|---|---|---|---|
| 3,222 ft. | 8" | 17.3 Sec. | 32 Sec. | 205.3 | 112.5 |
| 193.6 ft. | 42" M.H. | | | | |

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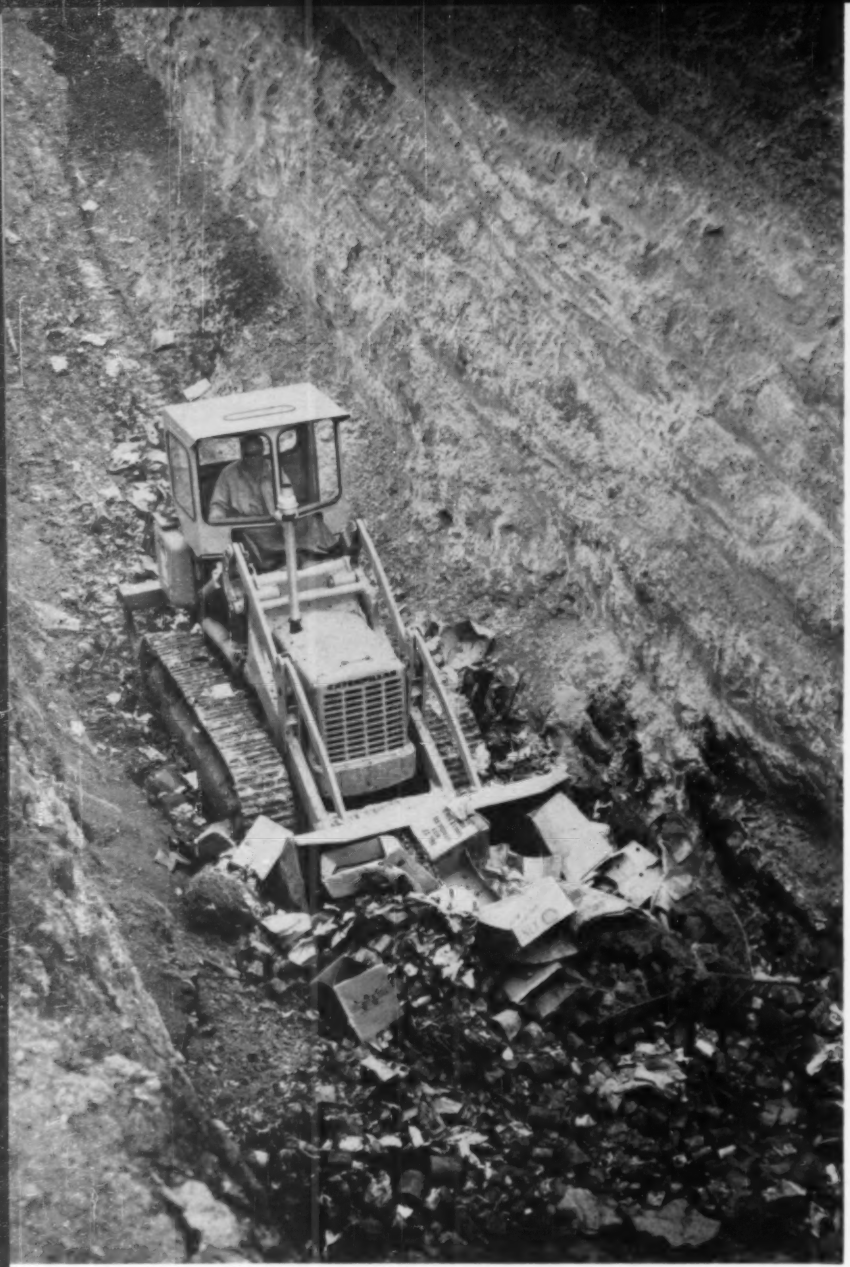
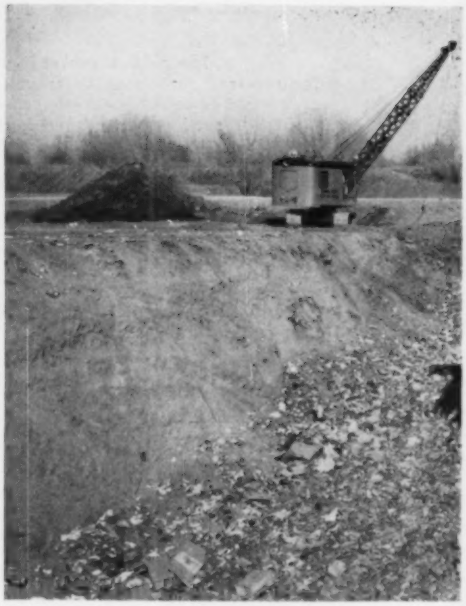
* The author's firm, H. C. Webster & Son of Milwaukee, Wis., served as consultants for the Village of Hales Corners on this project.





*The type of soil, the location of water and the size of the operation are three determining factors in trench size. They may be wide and fairly shallow . . .*

←

*. . . or narrow and deep.*

# The Sanitary Fill — — How It Operates

## Part III: basic methods and operating techniques

Properly conducted, the trench method provides the most orderly sanitary-fill operation. It is also the oldest method and is particularly suited to flat or gently rolling ground. In this method the refuse is placed in the trench and covered with the material removed during excavation.

Local conditions dictate the manner in which the operation is conducted. Where sufficient equipment is available, excavation may proceed on a day-to-day basis, with the freshly excavated earth used to cover the refuse as it is brought to the landfill.

This usually requires several pieces of equipment such as a dragline to excavate the trench and a dozer or bucket-equipped tractor to compact the refuse and place the cover material.

In some cases, for example when a private contractor does the excavating, it becomes advantageous to provide sufficient space to last for several weeks. The earth may be stockpiled along the edge of one or both sides of the trench where the tractor working the fill can readily use it for cover. Digging the trench in advance often proves best for win-

*The area method of sanitary landfill is particularly suitable for filling gullies and ravines . . .*

**A three-part discussion on how the sanitary-fill method of refuse disposal is improving health and sanitation within American municipalities. Parts I and II appeared in the February and March issues.**

ter operations, for it is usually easier to remove frozen earth from stockpile than to excavate the trench in frozen soil. An alternative consists of placing several feet of leaves or wood chips over the area needed during the winter to prevent the ground from freezing.

While many communities dump the refuse into the trench from the sides, the cleanest operation consists of building a ramp at one end of the trench to permit the refuse trucks to back into the trench and deposit their load at the opposite end. This prevents papers and other light material from blowing away.

## Trench Depth

Trench depth normally runs between six and 12 feet but may be considerably deeper. Local conditions such as size of the operation, type of equipment used, soil condition and location of ground water table, all affect trench depth. The width of the trench also varies with the manner of operation. It should be wide enough to provide operating room for the equipment working in the trench (tractor and trucks if they enter the trench) but not so wide that the tractor operator loses

*. . . large depressed areas as in this Utah operation . . .*

*. . . or abandoned gravel pits such as this one in Wisconsin.*

***By controlling the width of the working face, the tractor operator can do a better job of compaction and covering and can also keep the area clean. This ramp-type sanitary fill is located in California.***

control of the working face. Trenches should be about three feet apart, but this also varies according to soil conditions.

Centralia, Wash., operates a typical trench-type sanitary fill while Wyoming, Ohio, utilizes both the trench and area type (THE AMERICAN CITY, March 1958, p. 201, and July 1958, p. 159).

## Area Method

While the area method does not provide as orderly an operation as the trench method, it does permit the filling of gullies, ravines, abandoned gravel pits and similar depressed areas.

Cover material is obtained at the site or hauled in from some nearby point. Where cover material is scarce, it is often hauled to the site and stockpiled when available. Some cities specify that excavated material from public works projects such as street paving must be hauled to the sanitary fill site.

In the area method, the refuse trucks merely dump their load in front of or over the face of the fill, where it is placed and compacted by the tractor and then covered. Although there is no limit as to the depth of fill (Santa Cruz, Calif., reports a depth of 80 feet), it is better, where practical, to build up the fill in layers of about six feet with about one foot of cover over each layer. This method of operation provides better compaction and results in less settlement.

A cleaner and more orderly operation can be obtained by keeping the working face small; it should be as small as possible.

It should be no larger than needed to provide dumping room for the trucks (which varies according to the number of trucks reporting to the fill at any given time) and working room for the equipment working the fill.

Xenia, Ohio, recently completed filling an abandoned gravel pit using the area method and has now switched to the trench type of operation. Xenia's operation, a self-sustaining one, served as an excellent example of what a sanitary fill can be like (THE AMERICAN CITY, December 1959, p. 76).

## Ramp Method

The ramp method, sometimes called the progressive slope or moving trench, embodies some of the techniques of the trench and area methods. One basic difference is the technique of obtaining cover material just ahead of the operating face. In most ramp-type operations the refuse trucks and the equipment working the fill approach the working face from opposite directions. This prevents interference between the dumping and compacting and cover operations and allows more than one truck to unload at one time. However, as in the area method, the width of the working face should be no greater than necessary to handle the trucks efficiently. The wider the working face, the more difficult it becomes to keep the fill in order.

When applied to the area-type operation, the trucks unload refuse over the top edge of the ramp while the tractor works at the bottom of the ramp compacting the refuse, excavating earth in front of the working face (or ramp) and pushing it over the refuse.

The basic difference between this type of operation and the area method is the ability of the equipment to operate in front of the face of the fill, with the advantage of a short-haul distance for cover material.

When applied to the trench method, an initial trench is excavated and a ramp constructed at one end. Refuse is then dumped onto the ramp and compacted, with cover material obtained by further excavating the trench in advance of the ramp. This procedure continues until the trench becomes too small to permit further excavation, or when it is not desirable to increase the trench depth. The remaining portion of the trench is then filled from the top and a new one excavated.

Victoria, Texas, uses still another version of the combined ramp-trench method, dumping refuse at the bottom of the ramp and pushing cover material down the ramp, thereby advancing the trench (THE AMERICAN CITY, November 1959, p. 165).

Regardless of the method of operation, personnel needed at the site depends upon the amount and type of equipment used and the size of the operation. Where the equipment operator can take time to direct dumping operations, one man may do the job. However, a dump man should be available where traffic is sufficient to keep the equipment operator busy. The addition of a dump man pays dividends in better control and a cleaner site. An estimate of manpower required for operations of various sizes may be obtained from the summary table.

Regarding equipment, data supplied by one tractor manufacturer indicates that a crawler tractor with a 1½-yard bucket will care for the sanitary fill needs of a city of 30,000 or less. A 2½-yard bucket will better serve the needs of cities from 30,000 to 75,000 population, while cities in the 100,000 class should use a tractor capable of handling a three- to four-yard bucket. Again, equipment requirements vary with the type of operation, soil conditions and availability of cover material.

Finally, the sanitary landfill method of refuse disposal is adaptable to municipalities of all sizes, from the small community, like Stratford, Okla. (THE AMERICAN CITY, June 1960, p. 96) to large metropolitan areas such as Dallas, San Diego, and Seattle. ◄◄

| City | People Served | Annual Volume t=tons cy=cubic yards | Type | Depth | | Cover Material | Years in Operation | Settlement | Crew Size | Annual Acre Feet | Annual Operating Cost | Evidence of Decomposition | Equipment Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Refuse | Cover | | | | | | | | |
| TENNESSEE | | | | | | | | | | | | | |
| Maryville | 10,150 | .... | combination | 12' | 3"-4" | clay | 10 | .... | 1 | .... | $5,540 incl. fill cover material | very little | 1 International TD 14 with Drott 1½-yard Clam Bucket |
| Memphis | 500,000 | 845,520 t | ramp | 12"-14" | 6" | clay | 7 | 4"-6" | varies | .... | $.09 per ton | none | Caterpillar D 8 Bulldozer and D W 10 Equipment |
| Nashville | 180,000 | 410,000 cy | ramp | 3'-4' | 1' | clay-loam | 12 | .... | 4 | 90 | .... | yes, minor | 1 Caterpillar D 7, 3 Caterpillar D 6, 1 Allis-Chalmers HD 11, 1 Caterpillar Scraper (all Tractors are Dozer equipped) |
| South Fulton | 2,500 | 1,000 cy | area | 4' | 1' | clay | 1 | .... | 1 | .... | .... | .... | 1 TD 9 International Dozer |
| Jackson | 37,000 | 31,200 cy | trench and ramp | 8' | 2' | sand and clay | 10 | .... | 2 | 3 | $.33 per cy | none | 1 Allis-Chalmers Tractor with a 1½-yard Bucket |
| TEXAS | | | | | | | | | | | | | |
| Austin | 187,000 | 180,000 t | area | 1'-1¼' | 6"-8" | sand, clay and loam | 8 | very little | 2 at each of 3 fills | .... | $.44 per ton | none | 2 Caterpillar D 7 Tractor Dozers, 1 TD 18 A International 3-yard Clam, 1 HD 11 Allis-Chalmers 2½-yard Bucket |
| Beeville | 13,811 | 102,566 cy | trench | 14' | 1'-2' | clay | 20 | none | 1 | .... | $9,500 | none | 1 Caterpillar 977 Traxcavato with 2-yard Bucket |
| Dallas | 740,000 | 485,237 t | trench | 2' | 4" | .... | 15 | 4" in 10 years | 3 | .... | .... | some on deep fills | 13 International Tractors with 3-yard Drott Bullclams, 1 L-W Tournadozer, 2 L-W Tournapulls |
| El Campo | 9,000 | 24,000 t | trench and ramp | 6" | 6' | sand and clay mix | 6 | very little | 1 | ½ | $7,000 | none | 1 D 4 Caterpillar with a ¾-yard Bucket |
| Ennis | 1,200 | .... | trench | 6' | 2' | clay | 10 | .... | 1 | .... | $1,600 | .... | 1 Caterpillar Tractor with a 3-yard Bucket |
| Hereford | 7,500 | 4,320 t | trench | 2' | 4" | sandy soil | 1 | none | 2 | .... | .... | .... | 1 International TD 14 Crawler Tractor with a Dozer Blade and 1 International 14 A with a Dozer Blade |
| Lockhart | 7,740 | 1,659 t | trench | 14' | 2' | loam, gravel and calich | 6 | none | 1 | 1/3 | $3.77 per ton | not evident | 1 D 4 Caterpillar Front End Loader |
| Texas City | 30,000 | 50,000 cy (garbage only) | area | 5' | 16" | variety | 2 | .... | 1 | .... | $8,500 | none | 1 Oliver Bulldozer C 12 |
| Victoria | 32,700 | .... | trench | 2' 4" | 1' | clay | 2 | none | 6-7 | .... | .... | none | 1 International Harvester TD 14 and 1 D 7 Caterpillar both with Dozer Blades |
| Eagle Pass | 12,000 | .... | trench | 3' | 6" | clay | 6 | .... | 1 | 4 | .... | none | 1 T-D9 International with Drott Bullclam |
| Lake Jackson | 10,000 | 2,500 cy | trench | 4'-5' | 1½' | clay | 10 | .... | 1 | 5 | $5,000 | none | HD 6C Allis-Chalmers 1¾-yard Bucket |
| Taylor | 10,000 | 1,800 t | trench | 6' | 2' | black waxey | 11 | 10% | 2 | ½ | .... | none | 933 Caterpillar |

| City | People Served | Annual Volume t=tons cy=cubic yards | Type | Depth |  | Cover Material | Years in Operation | Settlement | Crew Size | Annual Acre Feet | Annual Operating Cost | Evidence of Decomposition | Equipment Used |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  | Refuse | Cover |  |  |  |  |  |  |  |  |
| Waco | 115,000 | 1,360 t | area | 3′ | 2′ | mixed | 7 | .... | 2 | .... | $.15 per ton | none | 3 Front End Loaders, 2-yard Buckets, Allis-Chalmers, Caterpillar, International |
| VIRGINIA |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Fredericksburg | 13,500 | 65,000 cy | trench and area | 8′-20′ | 2′ | sandy clay | 3 | 6″-24″ | 1 | .... | $9,000 | none | 1 D 7 Caterpillar Tractor, 1 Link Belt Shovel |
| Harrisburg | 11,500 | 7,800 cy | area | 1½′ | 6″ | clay | 3 | .... | 1 | .... | .... | none | 1 Allis-Chalmers HD 11 G with a 2¼-yard Bucket |
| Lexington | 10,000 approx. | 10,000 t | ramp | 1′ | 8″ | clay | 5 | .... | 1 | .... | .... | very little | 1 Caterpillar 955 with 1½-yard Bucket |
| Richmond | 240,000 | 1,000,000 cy | ramp | 6′ | 3″-4″ | varies | 12 | 18″ in 5 years | 6 fills, 2 at small, 3 at large | .... | $.10 per cy | yes | 7 Crawler Tractors with 2-yard Buckets, 1 ¾-yard Dragline rotated, Allis-Chalmers, Caterpillar and International |
| South Boston | 6,500 | 40,000 cy | area | 4′ mixed with clay | 6″-8″ | clay | 10 | 10% in 10 years | 1 part time | .... | $4,000 approx. | none | 1 Caterpillar D 6 Bulldozer, a 7-yard Gar Wood Pan |
| Bristol | 17,021 | 65,000 cy | trench | 20′ | 2′ | clay | 3 mos | .... | 1 | .... | $7,500 | slight odors | 1 D 6 Caterpillar with Dozer Blade |
| Farmville | 5,000 | .... | trench | 8′-12′ | 6″ | clay | 10 | .... | 1 | .... | $3,500 | none | International TD 9 Crawler Tractor |
| WASHINGTON |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Puyallup | 12,000 | 7,050 t | ramp | 12′ | 2′ | sand and gravel | 10 | 14″-16″ in 3 years | 1 | 3.3 | $9,381 ($1.30 per ton) | none | 1 Caterpillar Traxcavator |
| Seattle | 580,000 | 168,500 t | area | 8′ | 12″-18″ | sand and loam | .... | .... | 2 | 175 | $310,000 | yes | 2 D 8 and 2 D 6 Caterpillar Bulldozers |
| Tacoma | 200,000 | 404,000 cy | area | 15′ | 2′ | clay and loam | .... | .... | 5 | 25 | $.23 per cy | none | 1 D 7 Caterpillar Dozer, 1 T D 14 International Dozer, 7-10-yard-Scraper |
| Centralia | 10,000 | 8,700 cy | .... | 10′ | 3′ | clay | 3 | 3″-6″ in 3 years | 1 | 10 | $5,403 | none | 1 Caterpillar 955 Traxcavator 1½-yard Bucket |
| WEST VIRGINIA |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Huntington | 90,000 | 50,000 t | area | 6′ | 1′ | clay and loam | 6 | .... | 5 | .... | $.34 per ton | none | 1 D 7 Caterpillar Dozer and 8-yard Pan |
| Morgantown | 30,000 | 13,369 t | area | 3′ | 18″-22″ | clay, shale | 10 |  | 2 | 48 | $12,457 | none | 1 International TD 14 with Bullclam, 4-yard, 1 AC Tractor with Hi-Lift 1¼-yard, 5-ton White Dump Truck |
| WISCONSIN |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Hudson | 5,341 | .... | trench | 18′-24′ | 1′-2 | sand | 12 | none | 1 | ½-¾ | $4,900 | none | 1 TD 9 International Crawler with Drott Bucket |
| Madison | 126,000 | 10,800 t | area | 3′ | 8″ | 40% sand 50% clay, 10% stone | 6 | 8″ in 6 years | 3 | .... | $14,450 for cover only | none | 1 International TD 14 Crawler Tractor |
| Eau Claire | 38,000 | .... | trench | .... | 1′ | sand | 12 | .... | 2 | 12-14 | $36,000 | none | International TD-14 tractor with 2¼-yard Drott Bullclam |
| Two Rivers | 14,000 | 19,000 cy | trench | 6′-8′ | 2′ | sand and clayey sand | 5 | .... | 1 | 12-16 | $1.44 per cy | none | 1 Crawler Tractor with 1½-yard Bucket |

DARTT'S
—PARK—
PICNIC AREA
TENNIS COURTS
PLAYGROUNDS
BASEBALL
MAINTAINED BY OWATONNA PARK AND RECREATION DEPARTMENT

*Attractive signs such as this indicate the extent of park facilities.*

→

*Mr. Dan Gainey, the donor of the new park, and Mr. Pleckinger discuss the equipment layout.*

# "Good Parks" Is Our Slogan

## . . . and Owatonna, Minn., has a year-around maintenance program to back it

By **JOE PLECKINGER**
Park Superintendent
Owatonna, Minn.

We have a reputation to uphold. Owatonna, Minn. (pop. 13,500) has a slogan which reads: "The City of Friendliness and Beautiful Parks." We work at both ends of that slogan, but our efforts, naturally enough, have more effect on the parks.

Ten parks, some small, some large, total 78 acres. The Straight River (definitely a misnomer!) and Maple Creek wend their way through three of our largest parks, adding immeasurably to the beautiful woodland settings. Three dams assist nature to maintain an expanse of water, rather than just a trickle, during the heat of the summer. Lighted softball and baseball diamonds with club house facilities, tennis courts, and a varied assortment of picnic and playground equipment comprise the artificial aids to fun and recreation.

### Spring

When the winter snow cover leaves the ground in early April, it signals the start of a new maintenance season. Through the winter we skimped along with a minimum crew; but we now implement these men with four additional helpers who will work until next year's snow chases them away in late October. Park by park, these men plant, clean and rake, aided by an M-B 8 sweeper attached to the front of a Ford tractor. This six-foot sweeper quickly and efficiently accumulates winter-wilted leaves and other refuse which materializes during cold weather. We haul this trash to the city brush dump for disposal. From the winter storage buildings at the county fairgrounds we transport more than 250 tables and benches, 30 garbage containers and 20 iron picnic grills to their summer stations. Those few that did not receive winter repair and painting stay in the shop for rainy day attention. We repaint the white 55-gallon drums which find use as refuse containers, drilling holes in the bottoms of the new ones out of which rainwater can escape.

In 1958, we received a bonus. Prior to that time, two men spent three full days each week riding rotary mowers. After buying a tractor-mounted 90-inch Toro gang mower, we found that one man could accomplish in three hours what had previously taken two men a full day to do. In addition, we noted a substantial reduction in travel time from park to ball diamond to park. Grinding compound, added not less than once a week, insures good cutting edges. Self-propelled 22-inch Toro rotary mowers trim the areas which are inaccessible to the tractor-drawn cutters.

Our distinctive and attractive playground equipment accounts for a large part of our park popularity. We boast of, among other things, a spiral slide and a surplus F9F Navy Panther Jet. The spiral slide is one of no more than three in the entire state. The surplus plane enhances a complete set of Miracle Playground Equipment Company facilities in a new park, the land and one-half of the development costs being donated by an outstanding citizen.

### Maintenance Chores

After making any necessary repairs to our playground equipment, we paint it with attractive colors to correspond to our newly purchased swings and slides which come in shades of red, yellow, blue and white. We threw away our "standard park green" paint. Although we now purchase equipment containing stainless-steel slide bases, we still have some galvanized ones which receive a rust-preventing oil treatment for the winter. Mothers would become very annoyed if our spring duties did not include the removal of the oil.

Small, and some not-so-small, boys become impatient with us for concentrating our early spring efforts on parks rather than the softball and baseball diamonds. So far, we have been able to stave them off by allowing them to use the diamonds while we finish the parks. Our diamond maintenance also includes a gradual up-grading of these facilities. The installation of cast aluminum Balco base anchors now permits the dragging of the diamonds to pro-

*A truck-mounted blade teams up with an M-B sweeper to clear the ice.*

ceed without fear of fouling bases, base straps and base pegs. Two years ago we bought a double-duty outfield fence for our baseball diamond. During semi-pro games the fence towers eight feet high; for recreation department games, the top half of the fence folds downward, allowing park visitors to watch the games from beyond the outfield.

Late spring maintenance usually includes some grading and leveling, using equipment from the city engineering department. We built a drag of #9-gauge chain-link fencing on a wooden frame which we use daily during the summer prior to the nightly double-headers. Liming the baselines and dragging require a total of 45 minutes. We clip the outfield with the gang mower once a week, at the same time trimming the foul-line grass with the rotary. To improve the infield, we plan to mix some black dirt with the sand and clay now in place. This will result in a better, dust-resistant playing surface.

## Leaf Pickup

Fall's cooler weather turns our parks into brilliantly-hued wonderlands. If only the leaves would stay in the trees! We use our M-B tractor-mounted sweeper to accumulate these fallen objets d'art, now doing in half a day with three men what formerly required five men one full day to accomplish. The operator methodically windrows the leaves. His helpers haul them away or transfer them to nearby gravel drives for burning. In some areas of the city they use a large section of canvas to transport them these short distances.

Later, when the last hardy souls have held their final gatherings, we transport the picnic equipment indoors for the winter, making some minor repairs if time permits. During this period we also perform the 101 details that are necessary if winter ice skating is to be successful.

## Ice Skating

In addition to several rinks on public grounds, we attempt to locate others rather equally spaced throughout the entire city. This occasionally requires the use of privately owned vacant lots, providing that the owner gives his permission. Where leveling is necessary, the city engineering department does the job with an Austin-Western Super 88 motor patrol which is particularly effective in small, confined areas. After leveling, the operator constructs a small dike about ten inches high in order to provide a definite boundary.

If the ground is extraordinarily dry, we wet it down in the fall to speed the ice-building process when winter comes. These small rink locations are always near hydrants for ease and speed of construction.

Damming a low, flat bank section of the Straight River adjacent to Morehouse Park provides a convenient location for our giant rink and hockey-playing area. In late fall we burn this area, mulching, with the Toro mower, grass that is too wet to kindle. In normal years we have eight inches of ice before Santa Claus delivers the new skates. About four times a week we sweep the rink, following immediately with a spraying of river water to obtain a nick-free surface. A small Wisconsin engine operates a Viking water pump to lift the river water for this purpose. We believe that air temperatures between 10 and 20 degrees, combined with spraying the water into the air for cooling purposes, constitute ideal conditions for smooth ice formation. A Meyer snow blade mounted on a Ford pickup truck removes snow accumulations.

## Tree Trimming

Because our minimum winter-maintenance crew has other duties, the city engineering department street personnel do the necessary tree trimming and cutting during the snow season. To provide the smaller pieces and blocks of wood necessary for park fireplaces we hire farmers who furnish their own saws and labor to cut up the previously-felled trunks. All parks have enough trees to avoid hauling wood from one place to another.

We work hard to enhance our park reputation. The last three years have produced three major improvements to the existing facilities. We opened a new five-acre park in a section of the city which badly lacked recreation facilities. Two modified G-5 Laykold tennis courts in Dartt's Park now bring this sport to a portion of the population which previously had only inconvenient access to courts. And, finally, a community recreation center will soon be available. We are remodeling an old school to provide game rooms, recreation offices and a future rifle-archery range in the basement.

We must credit some other agencies with a share of the enviable reputation we enjoy. School officials cooperate gratifyingly by making their facilities available for basketball games, ice rinks and summer programs. The city engineering department trims our trees, grades our land, maintains our roads and repairs our equipment. News media unfailingly publicize our activities. A local radio station donates 15 minutes a week for a program in which we discuss pertinent current developments.

Three additional parks are in the planning stage. Steele County is considering the creation of a public recreation center on an undeveloped portion of the fair grounds. Some unused state highway right-of-way on the eastern approach to the city may shortly become a park site. Thirdly, the school board currently plans a park site adjacent to a newly-opened elementary school in the southeast portion of the city. Should all these ideas materialize, every family would have a park within convenient walking distance. ◄◄

# 701 to the Rescue

## Rockville, Md., gets tangible proof that a meaningful city plan, developed through the federally supported "701" program for cities under 50,000, brings results

By **W. A. SCHEIBER**, City Manager

*The installation of $700,000 in new storm-drainage facilities is part of the city's capital-construction program.*

Since we have been through it for the past six years and have had an opportunity to look back and examine where we have gone, the only real question remaining unanswered is, "Why don't more cities take part in the Federal '701' program?" There is no doubt about it, the program is good. For Rockville, it has meant that:

- **we have confidently invested $2,600,000 in added water facilities.**
- **we have invested another $1,500,000 in two major trunk sewers; one will open the city's west end to development.**
- **we developed courage enough to acquire a beautiful new civic center, covering 30 acres of land, and completed a new $250,000 auditorium on the civic center grounds.**
- **we became aware of our need for a "teen" recreation center, and built the first one in Montgomery County.**
- **we realized that storm drainage didn't need to be a persistent problem and invested $700,000 in a rehabilitation program.**
- **we began plans for a new city hall.**

Prior to 1945, we scarcely would have dared to consider *any* of these municipal advances. Rockville was a little town with a history dating back to the Revolutionary period. But in that long period, it had "grown" to no more than 2,000. Then in a short span of 15 years, starting in 1945, it jumped to an uncomfortable 27,000, something most difficult for a little community with its thinking set to small-community standards.

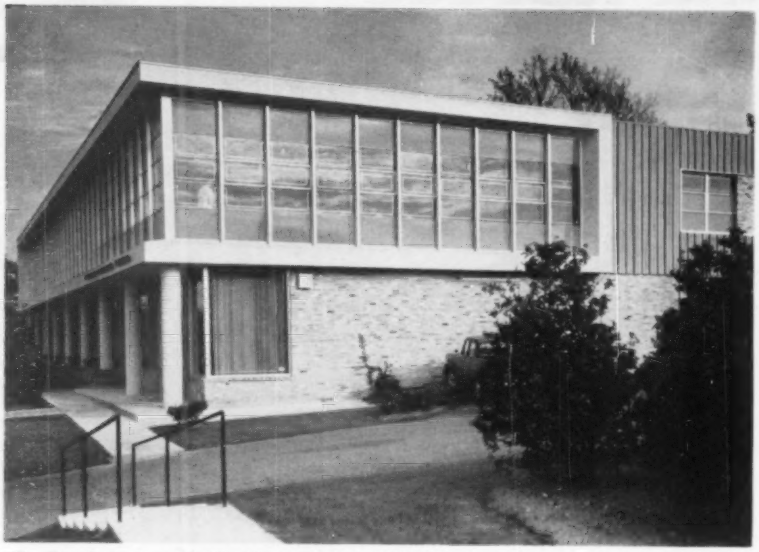
This doesn't mean that Rockville's mayor and council didn't try. During this period, the town's area grew from less than one square mile to more than seven. The mayor and council acted favorably on 22 separate annexation petitions. They wanted the town to grow and were alert enough to encourage annexations by controlling the use of the municipally owned water and sewer systems.

### Planning Forced

Nevertheless, there were problems aplenty. New streets, water and sewers had to be built and financed. The water and sewerage systems had to be enlarged. Difficult zoning questions had to be resolved. A few hit-and-run developers had to be watched closely and critically. But no one at all really had time to plan.

Gradually, it became clear that the municipality *had* to have a plan. It had to take stock of itself, decide where it wanted to go as a community, and then devise ways of getting there. The council was concerned over the over-balance of high-density small-lot development which had taken over; it was disturbed about the strip commercial uses which were beginning to strangle Rockville Pike; it was worried about its water and sewer systems; it was concerned about the health of its central business district which was

*Rockville's active program of housing-regulation enforcement is tied to the replacement of slum housing with adequate homes. Shown here is one section of a new public housing development, the first in Montgomery County.*



*The headquarters of Washington Technical Associates, one of the new industries which have settled in Rockville during the past few years.*

steadily losing customers to out-of-town shopping centers.

Then, in October 1958, after more than a year of negotiation and discussion with the staff of the State Planning Commission and representatives of the Federal Housing and Home Finance Agency, Rockville received its grant under the Urban Planning Assistance Program — the "701." The agreement provided for the city to prepare a comprehensive community plan, covering its projected expansion area and embracing all phases of municipal activity. This was to be completed in 18 months. HHFA agreed to underwrite half of the total estimated cost or approximately $12,000. The city agreed to raise the balance. As an interesting sidelight, the city's investment, which would go far toward assuring its economic and social health in the next two decades, was roughly equal to the cost of a single new street sweeper. Not that we are in any way opposed to keeping streets clean, of course!

## Four Basic Studies

Work on the plan began almost at once. We divided the work into four basic studies and retained consultants for each. The four studies were:

- **population and economic base, embracing a survey of 20% of Rockville's homes and all of its businesses—conducted by Ernest E. Blanche & Associates, Kensington, Md.**
- **analysis of the population and economic base study—by Morton Hoffmon, Baltimore, Md.**
- **traffic, parking and highway study, made by Oscar Sutermeister, Bethesda, Md.**
- **sanitary sewer and water facilities, by Hayes, Seay, Mattern & Mattern, Washington, D. C.**

In addition, the city undertook five additional investigations which we felt that we could do better because of our more intimate knowledge of local conditions:

- **central business district.**
- **park and recreation facilities.**
- **storm-drainage facilities.**
- **future school facilities—in conjunction with the Montgomery County Board of Education.**
- **a six-year capital improvement program, prepared jointly by our engineering department, our finance department, and our department of administrative services.**

Throughout all our work we maintained a close working relationship with the Maryland-National Capital Park and Planning Commission, which plans for the area around Rockville, the Montgomery County government, and the Maryland Road Commission, so that we would avoid any conflicting plans.

In March of last year, after 17 months of work, the Planning Commission unveiled the proposed plan at a meeting of the Rockville Chamber of Commerce as a prelude to a public hearing later that month. Interest in the plan was extremely high.

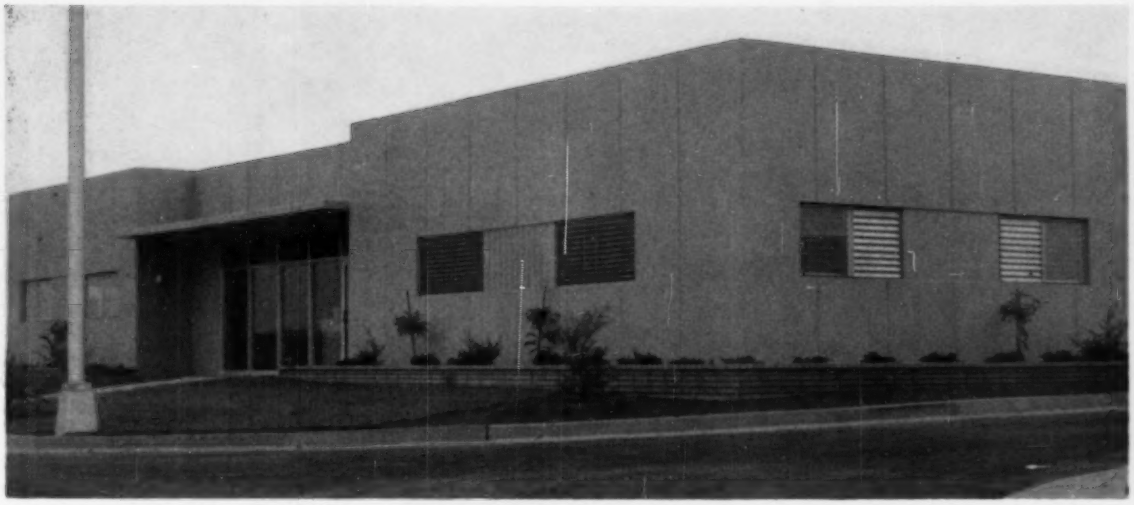
Later, we enjoyed a large, active public hearing. Some had questions, some criticisms, some requests for different handling of property in which they were interested. Finally, late in September, the Commission adopted the plan, which consisted of ten sections:

- **An analysis of the community's economic health—which was good.**
- **Projections of the city's population—which could easily rise to 62,000 in the next 20 years.**
- **A plan for the physical expansion of the city—which should double in the next two decades.**
- **A study of the city's housing needs, present and projected.**
- **Surveys of its commercial facilities and its industrial potential.**
- **A general plan for such facilities as schools, parks, recreation areas, and public buildings.**
- **Proposals for solving the community's traffic, transit and parking problems.**
- **A general land-use map delineating the size and location of the residential, commercial, industrial and institutional zones proposed by the Planning Commission.**
- **A series of proposals for implementing the plan through review and revision of our zoning ordinance and subdivision regulations, and programs such as urban renewal.**
- **A six-year capital improvement program keyed to both the city's physical needs and its ability to pay for them.**

To show the determination of the city to make the plan a reality, it is worth noting that we have not just marked time while completing the plan. During the past five years, the city went confidently forward with a capital-improvement program, keyed to the developing plan, which required an investment of some $3,500,000. We listed these at the start of the article.

Today the city knows where it is going. It has taken a step as significant as that taken by William Penn when he set the plan for Philadelphia, by Brigham Young when he told his teamsters to take a span of oxen pulling a wagon and trailer and turn them around, thereby setting the width of streets in Salt Lake City, by the old Swiss surveyor who staked out the original city of San Francisco.

All of this simply emphasizes that "701" is good for a city. We recommend it to all. ◄◄



***An attractive operations building houses the graphic instrument panel, laboratory, office, garage, store room and locker-wash room.***

# New Plant Separates Sewage Flows

## . . . by constructing dual facilities at one site for industrial and residential wastes

By **DAN P. NORRIS,** Project Engineer
Brown and Caldwell, Consulting Engineers, San Francisco, Calif.

Watsonville's new sewage disposal plant separates domestic from industrial sewage by means of side-by-side duplication of all units. The sewage flow of 6.7 mgd is divided almost equally between domestic wastes and industrial waste from fruit and vegetable processing plants. As these wastes are treated, they are kept completely separated so that the effluent of the industrial waste can be used for irrigation.

The city of Watsonville, Calif., is situated on the Pajaro River about five miles from Monterey Bay in the center of an area famous for its production of fruits and green vegetables. During the peak of the season local food processing industries handle some 700 tons per day, producing at the same time a serious industrial waste problem for the city.

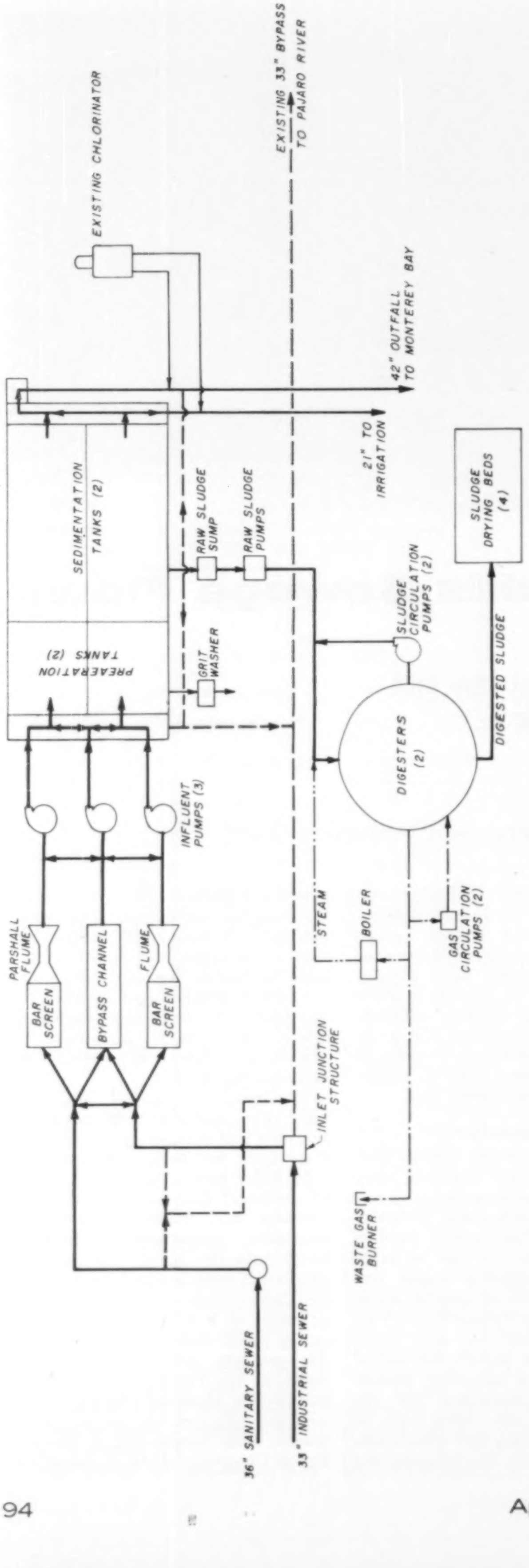
Prior to last year the combined sewage and industrial waste was treated by fine screens and chlorination, followed by discharge to Monterey Bay through two submarine outfall lines 16 inches in diameter extending 1,400 feet out into Monterey Bay. Rising population and industrial growth eventually overtaxed the system, resulting in a quarantined section of beach in the center of a popular clamming area. A complete study of the sewerage system indicated that the best solution to the problem was the construction of primary treatment facilities and a larger, longer submarine outfall line.

### Problem—Solution

While the industrial wastes presented a treatment problem, they provided the possible solution to another problem—a scarcity of water for irrigation. California's rainless summers require the use of large quantities of irrigation water, and for years the rate of ground water extraction in the Pajaro River Valley has exceeded the safe yield. State regulations permit the use of the effluent from industrial wastes, after primary treatment, for the irrigation of certain crops such as sugar beets, fodder, and artichokes. With this in mind, we designed the primary treatment plant to provide for complete separation of domestic sewage and industrial waste. Future construction will make it possible to double the capacity of the primary treatment and provide for secondary treatment facilities which would permit the reclamation of the effluent of sanitary sewage as well as industrial wastes.

The plant is divided into four basic parts: pretreatment, pre-aeration and grit removal, primary sedimentation and sludge digestion.

Prechlorination is applied on a proportional flow basis to both the sanitary and industrial waste in manholes immediately preceding entry into the plant. As the flow enters the open headworks, hydraulic sluice gates close automatically in event of both utility and emergency power failure, bypassing both the sanitary and industrial waste flows to the Pajaro River. In the headworks identical channels provide for both sanitary and industrial waste, each containing a Chicago Pump Company Model C barminu-


36" SANITARY SEWER
33" INDUSTRIAL SEWER
INLET JUNCTION STRUCTURE
BAR SCREEN
PARSHALL FLUME
BYPASS CHANNEL
BAR SCREEN
FLUME
INFLUENT PUMPS (3)
PREAERATION TANKS (2)
SEDIMENTATION TANKS (2)
GRIT WASHER
RAW SLUDGE SUMP
RAW SLUDGE PUMPS
SLUDGE CIRCULATION PUMPS (2)
DIGESTERS (2)
DIGESTED SLUDGE
SLUDGE DRYING BEDS (4)
STEAM
BOILER
GAS CIRCULATION PUMPS (2)
WASTE GAS BURNER
EXISTING CHLORINATOR
42" OUTFALL TO MONTEREY BAY
21" TO IRRIGATION
EXISTING 33" BYPASS TO PAJARO RIVER

FLOW DIAGRAM

**This flow diagram indicates the many points where the sewage can be combined or kept separate.**

**Fog hampered the efforts of the barge (obscured) to pull this section of the marine outfall sewer into position.**

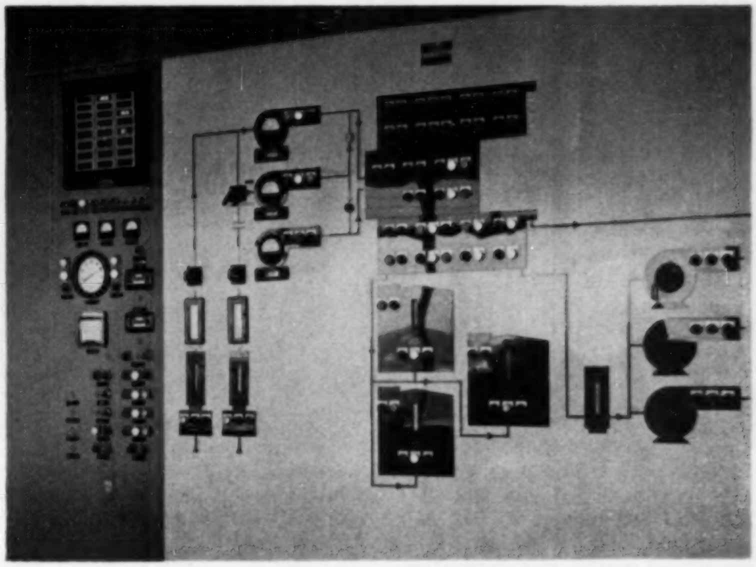
tor and a Parshall flume. A third channel, containing a hand-raked screen, bypasses the sewage when necessary. By means of aluminum slide gates both flows can be directed through any one or more of the three channels.

Three 18-inch Fairbanks, Morse mixed-flow raw-sewage pumps with a total capacity of 36 mgd (for wet-weather flow) take suction directly from the inlet channels. The speed of the pumps varies in direct response to flow by means of three Flomatcher water rheostats which regulate the current input to the 60-hp wound rotor pump motors. By this means the need for a wet well is eliminated and treatment is improved by maintaining a uniform rate of flow through the sedimentation tanks.

We normally use pump No. 1 only on domestic sewage and pump No. 3 only on industrial waste. The controls are so arranged that pump No. 2 operates as either the lead or follow pump on the sanitary or industrial flow. Any two of the pumps will handle the predicted future peak flow.

These pumps route the sanitary and industrial wastes to separate channels which deliver the flow to two pre-aeration tanks which are each 19 by 38.7 by 11.7 feet deep with a detention time of 0.45 hours. Aluminum slide gates make it possible to direct either flow through either tank. Pre-aeration air is provided by Sutorbilt rotary lobe-type blowers. Grit settles out in the pre-aeration tanks and is swept by the rolling motion of the sewage into hoppers from which it is removed by water ejectors to a Walker Process grit washer.

A curtain wall with diffuser ports separates the sedimentation tanks



*A complete metering system shows the flow through the plant at all times.*

from the preaeration tanks. Link Belt chain and flight type longitudinal and cross collectors accumulate the sludge which is then removed from the tanks by Walker Process sludge air lifts. Scum returns to the front of the tanks by a system of low pressure water sprays and is removed by a Link Belt helical skimmer. Sludge and scum flow by gravity to a central sump from which they are pumped to the digester by Moyno helical impeller sludge pumps. Each sedimentation tank is 19 by 124 by 9 feet deep with 1.13 hours detention.

## Use Effluent

Pumps mounted at the effluent end of the sedimentation tanks pump from the tanks into a separate water system which supplies chlorinated plant effluent for operation of the chlorine solution injectors, the scum skimming spray system, the grit ejectors and for plant washdown and irrigation.

Postchlorination is applied in the sedimentation tank effluent channel. From this point both the sanitary and industrial wastes are directed to the new submarine outfall line in Monterey Bay. However, the industrial waste flows can be diverted to adjacent farmland for irrigation.

The two 35-foot diameter by 27.5-foot deep sludge digesters have Walker Process floating covers and Walker Process Gaslifters for sludge circulation. In addition, each digester contains a two-speed Moyno pump for sludge circulation and transfer. One pump serves as a full standby for the other. The reinforced concrete digesters have a concrete brick facing set two inches from the digester wall which serves the dual purpose of providing a pleasing architectural appearance and forming a dead air space for insulation. Two low pressure Fitzgibbons steam boilers, one operated on sludge gas, the other on propane, provide 15-pound steam which is injected directly into the digester circulation pump discharge lines for sludge heating. Earth-diked sludge drying beds (gross area: 2.5 acres, 18 inches deep) contain the digested sludge. We do not separate the two types of sludge because only the industrial effluent is used for irrigation.

The one-story concrete operations building includes plant offices and central control panels, a fully equipped laboratory, shop and storage facilities, and a boiler room, as well as the operators' day room and locker room. One interesting feature of the control room is a graphic indicating panel which shows at a glance not only which equipment is operating, but whether it is operating on sanitary sewage or industrial waste. The plant is protected against power failure by a 150-kw propane-fueled Waukesha model WAKB engine generator set which is installed in the boiler room. It starts automatically when plant power fails and produces sufficient energy to operate the hydraulic influent sluice gates, the barminutors, the raw sewage pumps, and related controls, plus an emergency plant lighting circuit.

A three-mile-long reinforced concrete land outfall line 42 inches in diameter connects the plant to the new 39-inch diameter submarine outfall sewer extending 3500 feet out into Monterey Bay. This piping system has sufficient capacity to carry present maximum flows by gravity even at extreme high tides.

Future flow increases, however, will require pumping the plant effluent during high sewage flows at high tides. With this in mind, the building which housed the fine screens in the old plant has been converted to an effluent pumping station. We deferred the purchase of the pumps until flows increase substantially.

The sewage treatment plant cost $871,000; the submarine outfall sewer, $470,000. A federal government grant of $250,000 aided the revenue bond financing for the project. Brown and Caldwell, civil and chemical consulting engineers of San Francisco, had charge of design and inspection. C. W. Masonheimer is the city manager and Royal E. Fowle is the city engineer.

The Watsonville sewerage system serves not only the city of Watsonville, but also the neighboring unincorporated areas of Freedom and Pajaro. Construction of the new treatment plant and submarine outfall was undertaken as a cooperative venture by the city of Watsonville, Freedom County Sanitation District, and Pajaro Sanitation District. This is an excellent example of intercommunity cooperation, with each community sharing in the cost of both the treatment plant and submarine outfall sewer contracts on the basis of contributed flow. ◄◄

# Electronic City Surveying

## . . . help fast-growing Phoenix, Ariz., to prepare the needed maps for new areas

By **C. L. ARMSTRONG***

Phoenix is literally being resurveyed. With City Engineer Sam Tucker directing and Ervin Nelson supervising the field section, the city has started a program to establish coordinates under the state plan coordinate system. The goal is to locate each section and quarter section corner in the entire city. However, this is only part of the overall plan. Because of the tremendous growth of the city and the entire metropolitan area, the city engineer's office has been unable to prepare official maps for approximately 138 square miles of the city.

We, of course, need basic maps of this area, prepared rapidly to keep ahead of our improvement program (paving, sewers and utilities). Consequently, we are not taking the time now to establish a control net of high precision. As soon as we have completed primary maps for the unmapped areas, we will then remap the older sections of the city. We then expect to inaugurate a complete, precise tri-lateralization program and to remap the city as soon as it is physically possible.

We will tie the survey to the United States Coast and Geodetic triangulization stations in the area and are coordinating the program with the State Highway Department, the Coast and Geodetic Survey, and the United States Army Map Service, all of whom are working in the valley with Geodimeter programs.

### Modern Equipment

Equipment for the City's program consists of a Model 4 Geodimeter, a DKM-2 Kern theodolite, four Wild night traverse targets, two trucks and two General Electric portable radios. A fan-belt-driven generator mounted on the truck motor provides the 110-volt AC power supply for the Geodimeter. This generator produces 1,100 watts, giving ample power for additional lighting. Each truck has two flashing red lights mounted on the top of the canopy over the truck bed. In addition the truck turn-indicator lights have been wired into the flasher system so that when it is in operation, six red-and-amber lights start flashing. We put these into operation whenever we must park the truck in a hazardous location.

We use a crew of four men and two trucks; two men on one truck operate the Geodimeter and the other two on the remaining truck place the reflector stations. Work starts at 11:00 p.m. and finishes at 7:30 a.m. This schedule allows us to take advantage of the light-traffic periods during the early morning hours.

To expedite the work we developed a standard survey procedure. The instrument men occupy a corner of a quarter section and measure one-half mile in each of the four cardinal directions using the Geodimeter. To make the measurements, this unit employs a modulated light-beam that is reflected by pre-established and unmanned reflectors placed at the other stations.

Then the crew moves diagonally across the quarter section to the opposite corner. Thus, with two set-ups, the men measure four distances which traverse one quarter section and two distances each for two other quarter sections. By occupying all four corners with the theodolite,

*While party chief Henry Shearrow adjusts the Geodimeter (left) John Mueller sends a sighting signal to the instrument (right), party members Don Miller and Evans Rust maintain communication via a two-way portable radio.*

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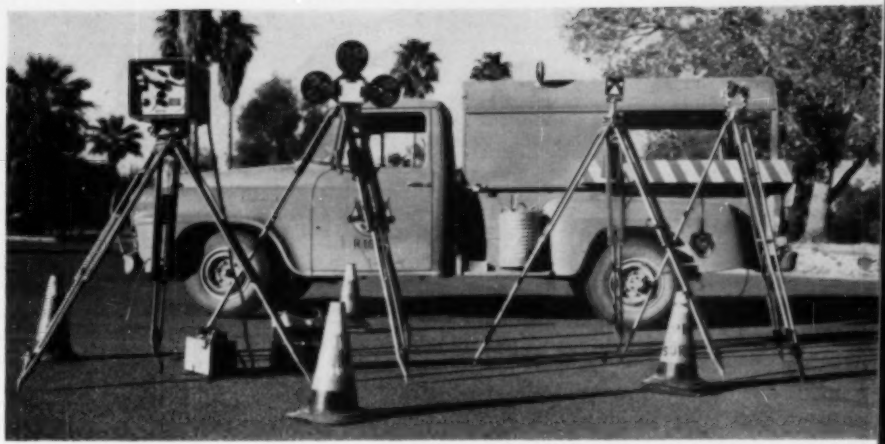
* Mr. Armstrong is a member of the Survey Section, Division of Engineering, Phoenix, Ariz., and is in charge of the work described in this article.



*The basic equipment for the survey party includes two trucks like the one shown, and (from left to right in the foreground) a Geodimeter, a reflector, a portable radio (under the reflector tripod), a traverse target, and a DKM-2 theodolite.*

turning the four interior angles, and closing the horizon at each point, they complete the traverse.

Although this method saves time, the survey crew has to keep careful records so that we can transfer the distances and angles measured to the adjacent quarter-section notes when computing the traverse for that quarter section.

The crew requires less than 30 minutes to set out safety equipment and set up the Geodimeter over the point. Break-down time after completion of the work takes approximately 20 minutes. The average time for the actual measurement of a distance is about 15 minutes. Thus, in less than two hours at any corner, the men can measure a distance of two miles to a high degree of precision. In five months, we have measured 182 miles of closed traverses on 60 quarter sections and turned 316 angles. This, incidentally includes time required for locating sub-surface monuments.

## Two-Way Radio

The two-way portable radios permit constant communication between the Geodimeter or theodolite station and the reflex or target stations. This enables the crew to move the equipment from a completed point to a corner ahead of the next sighting. Thus, the Geodimeter or theodolite operator is able to sight on his next point without delay.

Our almost ideal atmospheric conditions allow the crew to use a reflector consisting of a single housing with 3 prisms for the distances generally measured. The equipment includes the reflex D set with three housings of 3 prisms each. We mount each set on an individual tripod so that the reflex equipment can occupy three points at a time. We move one tripod and housing from the first setup to the last point for the last shot before picking up the equipment and moving to the next set-up. In the more brightly lighted sections of the city, such as the downtown portions where traffic is heavier in the early hours, the crew has found that sometimes it takes somewhat longer to measure a distance. However, as far as accuracy is concerned, this external light creates no problem. For angular measurement we use commercial night targets with rheostat-controlled lights. These have proven very excellent for half-mile distances.

Occasionally, in areas with considerable back lighting, a flashing light helps sight the instrument but we always use the regular commercial target in making the final sight. Since we are measuring half-mile distances, we considered a daytime operation but did not try it because of the traffic movement. The night operation has proved to be very satisfactory.

In addition to speed, we are also satisfied with the accuracy. The angular error of closure has been less than 01.5 seconds per traverse point. Traverse closures run as high as 1:1,495,000 and the average closure per traverse is 1:500,000. We consider this very good, since angles have been turned just once with the scope normal and once with the scope inverted, instead of "winding-up" the angles as is the normal procedure.

## Danger Involved

Traffic safety comprises one of our prime concerns in this night-time operation. In addition to the flashing lights on the trucks, we use traffic cones tipped with reflectorized white paint. The warning lights on the trucks alert oncoming drivers when they are about one-half mile from the occupied intersection. About 400 feet from the intersection the headlights pick up the reflectorized cones indicating to the driver the proper traffic lane he should follow. Even with these precautions and safety measures, the drunken driver still poses a threat to safety. Recently one hit a truck and almost wrecked the Geodimeter.

The original surveyors of the state's general land office used the rectangular or sectional system. Most of the main intersections are, therefore, approximately 90-degree corners and for the most part run in the four cardinal directions. Thus, we are able to run precise traverse nets over the entire city with few line-of-sight obstructions that require offsets or extra traverse points. This has helped us to save considerable time on our present program. ◄◄

*Duncan, Okla., now receives eight mgd of the cleanest and most palatable water in its history.*

A dam saves Duncan, Okla., from becoming a ghost town by uniting the conflicting purposes of . . .

# Water Storage and Flood Control

By **HERBERT I. JONES,** Field Information Specialist
Soil Conservation Service, U. S. Dept. of Agriculture

From a low point of water rationing with the attendant threat of industrial losses to plenty of water with industrial expansion — this is the story of how one city lifted itself up by its bootstraps. The first major agreement for a municipal water supply in conjunction with a federal flood-prevention project bears the responsibility for the aggressive, growing character of Duncan, Okla.

*Two of the key men who saved the City of Duncan, Okla., City Manager J. B. McLendon and Mayor Wayne Holden inspect a watershed map.*

The newly-constructed Wildhorse Creek dam now provides the city with an additional supply of water for a source cost of 1¾ cents per 1,000 gallons. As a result, industry is growing, new subdivisions are being occupied and the 1965 population is predicted to be 40,000, compared to 15,000 in 1950.

In 1955, conditions were different. Floods and drought had struck twin blows. The city's three wells were exhausted. Temporary pumps and pipe lines from a distant lake could not meet the demand when the chief water source, Lake Duncan, became a mud flat. Water rationing made baths a luxury and threatened to close the main industries, oil refineries and operations.

## Flood Control Plan

Meanwhile, the Stephens County Soil Conservation District had proposed a watershed-protection and flood-prevention scheme for the farmers and ranchers of the Wildhorse Valley to prevent damages from occasional torrents and the accumulation of red silt in the ordinarily dry creek-beds. As the flood control plans took shape, the civic leaders of Duncan consulted with the Stephens County group to enlist their aid in combining the dam's flood-control job with their own storage requirements. The Stephens County representatives explained that they had agreed to furnish the land and pay for the operation and maintenance of the system which would include 25 dams, while the Soil Conservation Service was pledged to furnish the engineering and construction costs. Dams were being designed to prevent the fast run-off by holding the water only temporarily and then emptying automatically in readiness for the next onslaught.

An agreement whereby Duncan would pay for the construction of Dam No. 22 was reached between the city and county groups, provided that this dam could be used for storage. But the Soil Conservation Service pointed out, when this plan was suggested, that the safety factor of the project would not permit any permanent storage. The city then investigated possible dam sites of its own, rejecting all of them on the basis of cost or feasibility. There was no other reasonable location at which a city-owned dam could be built.

The Soil Conservation Service, realizing there was no other solution for the residents, redesigned Dam No. 22 to provide the originally anticipated flood runoff, plus a permanent storage basin for the city. On this basis the city agreed to pay for all costs over the originally estimated amount for flood prevention. After a saturation campaign in which every citizen of Duncan (half of the 1950 population had now left town) was completely informed of

***Corrugated metal pipe filled with concrete become part of the foundation for the water intake tower.***

→

***To empty the flood control portion of the reservoir slowly, twin concrete pipes are laid in place while the intake tower is being constructed.***

all the facts, the $2,500,000 bond issue was passed with negligible opposition. Included in this amount was the money for the city's share of the dam, a new plant capable of pumping 8 mgd to the city, a three-mile, 22-inch feeder line, a loop of new mains to improve distribution and a possible future combination water supply-flood control reservoir at another proposed flood-control site.

## Construction

Construction to block-off the 24,000-acre natural catchment basin began in 1957 at site No. 22 and included the moving of 678,000 cubic yards of earth, compacting it into place and the cutting of an emergency spillway at a cost of $242,000. Added to this were $83,000 for riprap and the water-intake tower, $255,000 for land easements and contract administration, $73,000 for utility relocations (including the sewage-disposal system of another community), and $16,000 for the clearing of timber.

Duncan's 68% share of the $743,000 site construction bill came to $505,000 which did not disturb the originally anticipated two-to-one benefit-cost ratio of the flood-control project. The reservoir capacity of the resulting Lake Humphreys, named in honor of a local citizen who worked tirelessly for both projects, is 26,000 acre-feet, divided equally between floodwater and municipal water storage. This provides a reserve of 3,400 acre-feet as a safety factor for sedimentation. To prolong the effectiveness of the silting basin, the upstream farmers and ranchers are presently following a soil conservation program which includes the construction of terraces, waterways and ponds, and the establishing of permanent ground cover.

Duncanites, not yet satisfied with the amount of storage, are presently negotiating for a second combination reservoir which would add 17,500 acre-feet of capacity to their city's water system at an estimated cost of $500,000. The present and anticipated growth of population and industry, due not only to an adequate water supply but to the flood-free location, makes another combination reservoir economically desirable, even though the water will have to be pumped 17 miles to reach the city. Existing treatment facilities include filters with a total capacity of eight mgd, which are equally divided by type between Anthrafilt and rapid sand.

Additional benefits, like boating, fishing and hunting, are causing industries, which are interested in the activities of their employees after working hours, to consider Duncan as a prime place to locate. When the city recently opened Lake Humphreys for recreation, the modest fees collected in one day paid for the caretaker's new home. And no longer will floods rip out roads, bridges and industrial pipe lines. The will to survive as a city, and cooperation among municipal, county and federal officials have made Duncan a desirable place to live, one of the fastest-growing cities in Oklahoma. ◄◄

***Construction equipment traces patterns while excavating earth with which to build the dam (left).***

# Find Those Lost Ratables – –

## Aerial tax mapping pays for itself in the first year—from tax revenues alone; the intangible advantages are great accuracy, convenience to taxpayers, and a fair equalization analysis

By **FRANS W. ter MEULEN,** Supervisor of Tax Mapping
Chicago Aerial Survey, Franklin Park, Ill.

An old-time curiosity called aerial photography is just beginning to find favor among city and county assessors as a practical workmanlike tool for assessing purposes. The best reason for this interest, according to assessors—additional revenue.

Tax mapping through the use of aerial photography is not new. Even during the early 1920's some eastern and midwest communities were trying out the then "new-fangled" aerial assessing method and getting good results, largely because of the confusion that often surrounded old-time deed recordings.

But tax mapping is not an automatic benefit to every community that decides the tax rolls need a closer look. In many communities and counties, land ownership, building tenancy and value are easy to determine. Some communities have but a few buildings and still fewer owners. In these cases, communities are wise to stay with land-record analysis as the basis for tax assessing. Aerial or ground survey just won't pay.

Before leaping on board the aerial tax-mapping bandwagon each civic tax official should take a thorough look at basic criteria. By doing so he eliminates the possibility of acquiring information that might not pay for itself for a dozen years.

### Test of Need

What should the civic official ask himself?

*First,* is accurate information already available?

It may be that good data are on file, just ready to be put to use. However, information from deeds alone has a notorious record of incompleteness and inaccuracy.

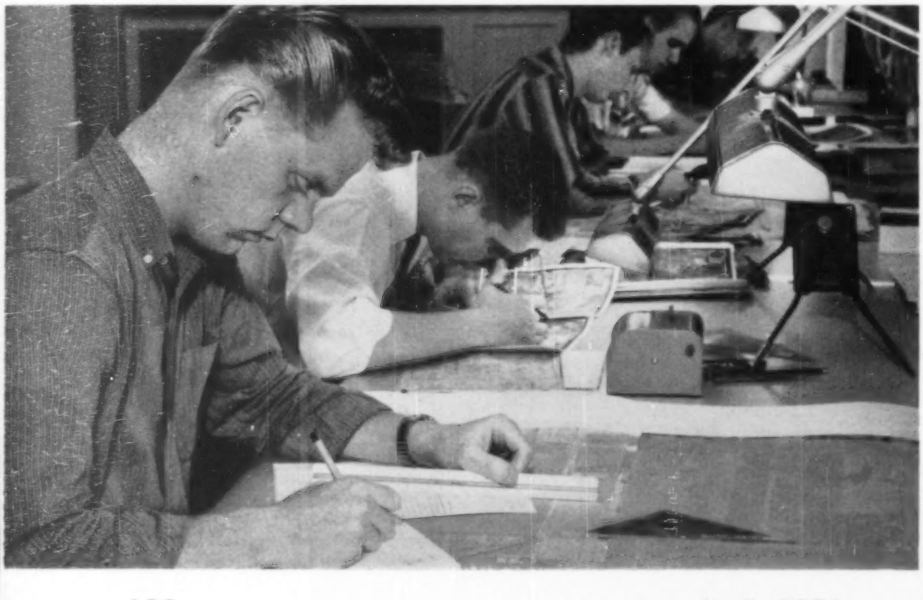
*Second,* are many parcels of land in the area to be assessed?

If so, some acreage probably is being overlooked or understated. This is especially true where the land is used for different purposes, such as farming, housing and quarrying.

*Third,* is the land in the process of undergoing zoning changes or land-use changes resulting from increased populations?

In Cook County (Chicago) a farm may be located right in the middle of 500 or more $25,000 homes. In a case such as this photography is called for.

If a community fits into one or more of these categories, the official



***Examiners check property records and plot deed records on the aerial maps.***

# By Air Survey

*Stereo viewers help to show how the land is being used.*

*Investigators check existing plat maps against recent air photos.*

must still determine just how the mapping should be done.

First is conventional ground methods. What community officials must consider, though, is whether or not the result will be complete plus the time and expense required. We have found that generally it takes too long and costs too much to conduct a proper land surveying job. The cost for such a project may never be recouped.

Second is to utilize existing deeds and records as the basis for mapping. In this way the assessor's staff pieces together every parcel of known property, relying on historical deeds, plats and any other appropriate records to do the job. Cost can be either low or excessively high depending on the availability of records. Biggest drawback here is the quality of existing data and the lack of enough experienced personnel to do analysis. If the basic records are in error the result will be a compounded error, never to be rectified since the original data is seldom changed.

## Air Survey Finds All

Third and most acceptable in the vast majority of cases is the aerial photography method. By using it the assessor gets a map that includes every piece of property. There are no missing links. With the map, he can eventually define each piece of taxable property under his jurisdiction.

From the map he can locate tax boundaries, classify areas of zoning, locate roads, right of ways, individual parcels, buildings, houses, public utilities and any other particular bit of information he might like.

## Extras

One big advantage for the official is the amount of work done for him by the survey company doing the project. The official gets the mosaic map of his district plus a geographical and alphabetical index to all property.

Lost property? With proper tax mapping there's no such thing, for every piece of property can be accounted for by reference to the aerial map or cross-checking with existing deed and record statistics.

Is it all worth it? Communities which have come in contact with tax mapping through aerial reconnaissance say an emphatic "yes." Here are the reasons:

- **Aerial mapping gives the assessor an accurate account of all taxable properties in the district. For many officials the map may be the first experience with complete, faultless records for taxing purposes.**
- **Taxpayers benefit because of their new ability to locate property quickly through the use of aerial maps. Assessors report good taxpayer reaction in almost all cases.**
- **Aerial tax mapping means more revenue. In every case of tax mapping with which I am familiar, tax mapping has meant more money in community coffers through location of lost property and more accurate measurement of known parcels.**
- **Mapping gives assessors their best tool for evaluating existing property and the result is almost always more revenue. Mapping means fair equalization analysis with the result that taxpayers are satisfied.**
- **Aerial tax mapping can pay for itself, often during the first year. This ability of mapping to pay for itself takes aerial surveying out of the "cost" element and into an "investment" category.**

Other benefits keep accruing beyond tax assessing alone. Both city planners and engineers for industrial development, traffic analysis, school building, sanitary plans receive aid through the availability of accurate tax-mapping aerial photographs.

Finally, aerial surveying is the cheapest and best way to tax-map. In rugged country or confusing, crowded cities, the cost might run to $20 a parcel. In other areas the cost may dip to as little as $3 a parcel. Average is about $7 a parcel. ◄◄

# Doubled Refuse Collections Cost Us Less

*Faster collections and increased loads typify the new packers.*

## Hammond, Indiana, analyzes collection routes, upgrades its equipment, and saves while giving more and better service

*Continuous feed belt enables refuse to be emptied into the truck as needed without waiting,*

By **STEVE IVAN**
Assistant Commissioner of Streets and Garbage

Hammond, Ind., has absorbed, since 1957, a population gain of about 4% and a gain in refuse tonnage of more than 100% (from 708 to 1,500 tons per week), but it has doubled collections from one to two per week at a substantial saving in cost. The reasons — not magic or sleight-of-hand—are increased efficiency, the replacement of old trucks with new time-saving units and just plain hard-headed common sense and calculations.

We doubled our collections through the new-found efficiency of crews and trucks. By switching to modern, high-compaction truck bodies, we have been able to extend our service and keep up with its growth at the same time.

A total of 23 routes serves 28,750 business and residential stops in this city of more than 100,000 people. A crew of 75 men operates 23 enclosed-body trucks over these routes which combine business and residential stops. We collect all refuse from alleys; the average lot frontage is 38 feet.

### Analysis

Four years ago when we were still making one collection per week, three trucks were scheduled for replacement. Before buying, we analyzed the complete operation. To obtain more efficiency, we would have to reduce time lost in loading and hauling. Loading time was critical; routes contained 1,100 to 1,500 stops. Three daily six-mile round trips to the dump required more than an hour each, due to delays in traffic and at railroad crossings. So, after considerable analysis, study and planning, we obtained a start on the proposed program by specifying a more efficient type of packer body collection unit.

The low bidder agreed to furnish three 16-yard, Daybrook Power Packer bodies mounted on GMC 450 chassis. Equipped with a full-time feed-belt, each new unit promised to eliminate the time formerly consumed in operating the activator control, after the refuse was dumped into the receiving hopper. Due to its continuous feed, the belt could be ignored by the operators, enabling them to continue the pickups without waiting for the cycling time to end. With a seven-ton force on the crusher panel, the Power Packer pre-crushes the refuse after it leaves the delivery belt. Added to this is the secondary crushing force of nine tons that feeds the material into the body. This second action compacts the refuse and eliminates voids inside the body, allowing more material to be carried in the same volume.

In operation, pickups immediately took an upswing as the crews became familiar with the new loading techniques. With the continuous packing feature, we averaged a time saving of 28 seconds per stop, the period formerly devoted to operating the control during which the crew waited for the cycle to end. The time difference, calculated on the basis of 250 stops per day, indicated that each of the new units saved almost two hours every day in loading time.

Our operators estimate that the new bodies compact up to three times as much as the older machines. As a result, the average number of trips to the dump per day with the new units has been reduced from three to two, the small reduction being due to the greater number of collections that are now made before hauling.

## Results

On the basis of performance of the first three units, we purchased a total of eight additional Daybrook Packers in 1958 and 1960. Experience indicates that the new machines outperform the old ones at a ratio of 2.5 to 1. Based on an equal amount of work, we estimate that a saving of $100,000 a year could be made if the conversion were complete. When Mayor Edward C. Dowling requested more than one pickup per week for our refuse customers, we were able to give him a positive reply. We now make twice weekly collections for 75% of the city and expect to improve that figure as other older units are replaced.

In addition to lower cost and boosted efficiency, we also realized an extra, intangible bonus in the form of increased safety. Due to its design, the new packer will never catch a crew member's hand in the crusher while it is operating. ◄◄

# Open House Wins Support for Utility Program

It isn't every day that a city completes an important expansion program, so it pays to advertise when such an opportunity occurs, to advance good public relations. Kissimmee, Fla., did just that by holding an open house to show off a $1,310,000 utility-expansion program. The project included expansion of both the electric plant and water facilities.

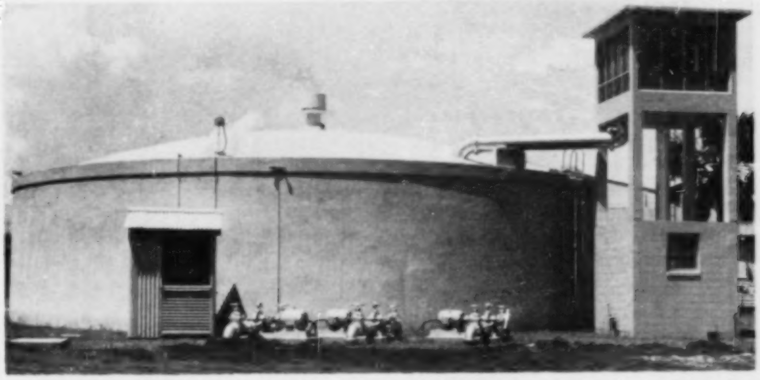
The basic addition to the electric plant consists of a new Fairbanks, Morse 12-cylinder, 3,000-kw diesel generator. This is the largest engine of its type ever made by the company. With the new engine we now have a total plant capacity of 7,940 kw.

The water improvement program includes one new, 14-inch well, fitted with a 1,500-gpm Layne pump; a 500,000-gallon concrete ground storage tank; and a Chicago Bridge & Iron 250,000-gallon elevated tank. Three Peerless 1,000-gpm high-service pumps pump water from the ground storage tank into the mains and new elevated tank.

Approximately 750 customers attended the open house. We distributed the special utilities section from the local newspaper and held a drawing for 25 medium and small electric appliances donated by various contractors and by the city. City employees served barbecue beef sandwiches, potato chips and orange juice which were donated by Fairbanks, Morse.

We feel the open house was a real public relations success as far as making the customers understand the necessity of undertaking such an "expensive" expansion of our utilities.

William R. Bailey
*Administrative Assistant*
*Kissimmee, Fla.*



*The 500,000-gallon ground-storage tank and three pumps greatly increase the high-service facilities; the structure at right houses aerator and chlorinator.*

THESE PRIZES WILL BE
GIVEN AWAY AS PART OF THE

*City Commissioner Dan Autrey (left) and Utilities Director Roy Hansel (center) look over some of the appliances given away at the open house, along with staff representatives of one of the participating manufacturers.*

## PAYLOADER with exclusive 4-in-1 Bucket handles jobs that are

# impossible

## for any other rubber-tired tractor-shovel

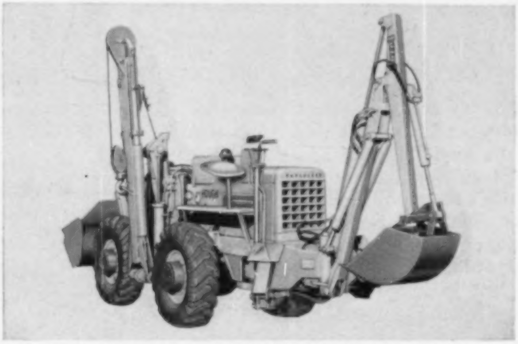
"It's *always* busy as it can do the jobs of several pieces of equipment," says a superintendent in explaining how their PAYLOADER with Drott "4-in-1" Bucket reduces equipment investment as well as the amount of manual work required on many projects.

**The "4-in-1" Bucket** – an exclusive on PAYLOADER units in the rubber-tired class – expands the usefulness of a tractor-shovel to many clamshell, bulldozer and scraper applications. With the clamshell action, you can also load the bucket without forward motion of the tractor – can pick-up large or small piles of dirt cleanly and eliminate slow, manual clean-up operations . . . can grip and handle stumps, boulders and slabs easily.

There are many other attachments that you can have for your PAYLOADER so that it can do the work of other specialized single-purpose machines. Consider the potential of a PAYLOADER – plus one or more of the following tools – to hold down your equipment budget and get necessary work done with a minimum expenditure of time and labor.

**Side-boom** – an *exclusive* on PAYLOADER units – lifts up to 6 tons at 4 ft. overhang; has double-acting, hydraulic-power boom extension; does not interfere with the bucket use; can work on pavement without damage, and is available for three PAYLOADER sizes.

**Backhoes** are available for front or rear mounting on several PAYLOADER sizes and are recognized as the best-engineered in the industry. One of these can be rear-mounted on several PAYLOADER sizes along with the Sideboom and "4-in-1" Bucket, and any of these three tools can be used on the same job.



**Sideboom, backhoe and bucket can all be mounted and used on the same PAYLOADER.**

**Blacktop Spreader** interchanges with the bucket and has its own engine power. With hopper capacity of 2 cu. yds., it lays hot or cold mix up to 8-ft. wide and up to 6-in. thick – instantly adjusts for widths up to 4 ft.

**Pick-up Sweepers** are interchangeable with the buckets on several PAYLOADER models and can dump their loads directly into trucks. Separate hydraulic motors drive main and gutter brooms.

**Snow Plows** of all types are available, interchangeable with the bucket, including one-way, Reversible, Vee and self-powered Rotary types.

**Other PAYLOADER Attachments** include hydraulic earth augers, vibratory compactor, fork-lifts, winches, backfill and angling blades. Your Hough Distributor is ready to show you how a PAYLOADER can work economies all year 'round.

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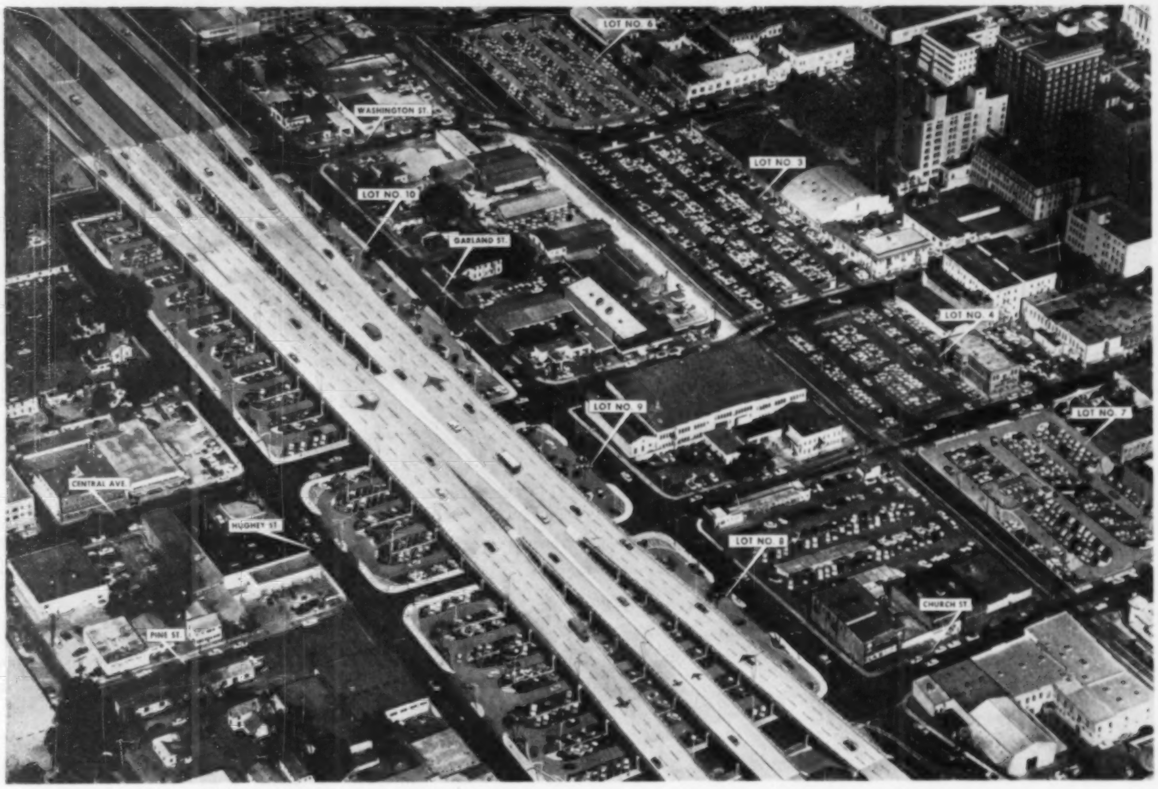


*Downtown parking facilities in Orlando, Fla.*

# Creating 1,000 Parking Spaces

By **G. MAHONEY**, Planning Engineer
Howard, Needles, Tammen & Bergendorff, Consulting Engineers

Almost 1,000 additional off-street parking spaces in downtown Orlando, Fla., will be located on space that would have been occupied by a freeway embankment had it not been for the imagination and foresight of city officials and engineers.

In June 1957, Howard, Needles, Tammen & Bergendorff, consulting engineers for the Florida State Road Department, submitted a report covering location studies and preliminary designs for an elevated freeway, Interstate Highway 4, through the Orlando-Winter Park metropolitan area.

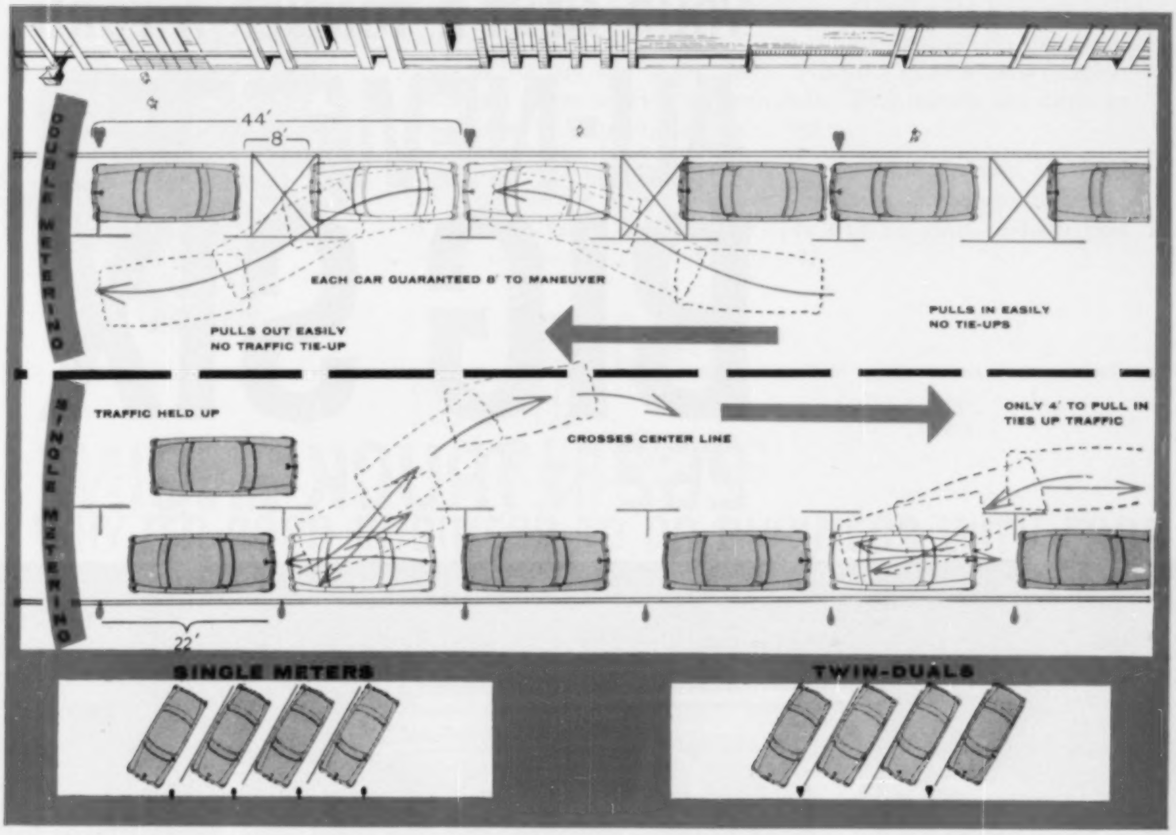
The Florida State Road Department, the Bureau of Public Roads and the City of Orlando subsequently approved the location and elevated profile of the interstate highway as well as the location and general type of local access interchanges adjacent to the central business district.

In Orlando, as in most urban areas, a critical need existed for off-street parking within and adjacent to the central business district. The idea of under-freeway parking was presented to Claude H. Wolfe, Chairman of the Orlando Parking Commission. He presented the idea to downtown merchants' associations and support was generally enthusiastic. J. Rolfe Davis, a member of the Florida State Road Board, coordinated and expedited approvals of the various state and federal agencies. The consulting engineers were asked to prepare further studies to determine the amount of space which could be made available, the possibilities of developing that space into adequate parking lots and the cost involved as compared to the original plan.

After preparation of preliminary studies and cost estimates, steps were taken to solve two major problems. First, the use of space under an interstate highway would need the full approval of the federal government through the Bureau of Public Roads. A portion of Section 112 of the 1956 Federal-Aid Highway Act granted the federal government the authority to authorize a state or political subdivision thereof, to utilize the air space above or below an interstate highway for the parking of motor vehicles. In April 1957 the Bureau of Public Roads issued a memorandum, known as Cherry Memorandum No. 31, outlining the situations and conditions under which the authority for use of space above or below an interstate route could be granted. The proposed plan for construction and operation of parking lots under the interstate

*(Continued on page 111)*

# HOW TO MAKE THE MOST OF EXISTING PARKING SPACE


DOUBLE METERING
44′
8′
EACH CAR GUARANTEED 8′ TO MANEUVER
PULLS OUT EASILY NO TRAFFIC TIE-UP
PULLS IN EASILY NO TIE-UPS
SINGLE METERING
TRAFFIC HELD UP
CROSSES CENTER LINE
ONLY 4′ TO PULL IN TIES UP TRAFFIC
22′
SINGLE METERS
TWIN-DUALS

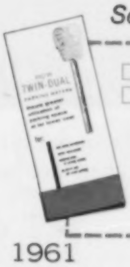
## *Only Twin-Duals get the most out of existing parking space and reduce metering costs 27% in the bargain*

The drawing above shows clearly how Twin-Dual Parking Meters insure eight full feet between cars while single meters often reduce space to only four feet. Note too how traffic flows more easily and safely when cars are assured adequate room to maneuver into and out of the parking spaces.

But greater utilization of parking space is only part of the Twin-Dual story. Since Twin-Duals are two separate meter mechanisms in a single case, initial cost is lower. And installation costs are reduced because only half as many meter stand installations are required. Twin-Duals also reduce collection and inspection time . . . every other meter "stop" is eliminated.

There are lots of sound, proven reasons why your community should investigate the economy and efficiency of Twin-Dual metering. Send the coupon for complete details in the new booklet on Twin-Dual Parking Meters. Dual Parking Meter Co., Subsidiary of Rockwell Manufacturing Co., Pittsburgh 8, Pa.

*Send for this free booklet today*



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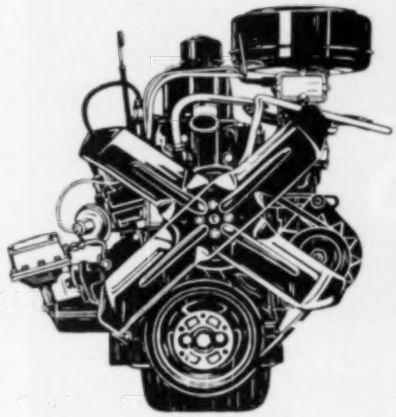
262 CU. IN. TRUCK ENGINE

FORD DIVISION, *Ford Motor Company,*

New two-ton toughness! New stronger frame ... huskier cab ... rugged truck suspension that can give up to twice the tire life of other types!



Now, the rugged simplicity of a big 262-cubic-inch Six is combined with the dependability of heavy-duty, *exclusive-truck* engine design. In a grueling 40,000-mile test of reliability, Ford's new Big Six was pitted against its principal competitor in the 2-ton field. Result: Ford's new engine required fewer service adjustments. This means less time in the shop . . . more time on the job.

The new Big Six is one of *four* engine choices in Ford two-tonners for '61—including America's most popular truck V-8's. See your Ford Dealer. He will be glad to help you select the best engine for your job.

# SEVEN MORE REASONS

# WHY IT'S GOOD BUSINESS TO DO BUSINESS WITH FORD!

You save from the start with Ford's traditionally low prices! And your savings continue with lower operating and maintenance costs. These facts are documented by certified test reports from America's foremost independent automotive research firm. Ask to see these reports. They're on file at your Ford Dealer's.

In addition to these actual dollar-and-cents savings, the following bonus benefits provide greater protection against those annoying problems that are often associated with truck ownership.

**1. Rigid quality controls** give you the strongest safeguard of truck quality ever. One tangible result of these new and uniformly high standards is Ford's liberal new warranty program. Other results: extended durability and performance, lower operating costs.

**2. 12,000-mile warranty** (or 12 months) on *all* 1961 Ford Trucks of any size. Each part, except tires and tubes, is now warranted by your dealer against defects in material or workmanship for 12 months or 12,000 miles, whichever comes first. The warranty does not apply, of course, to normal maintenance service or to the replacement in normal maintenance of parts such as filters, spark plugs and ignition points.

**3. Exclusive 100,000-mile warranty** (or 24 months) on 401-, 477- and 534-cu. in. Super Duty V-8 engines. Each major engine part (including block, heads, crankshaft, valves, pistons, rings), when engine is used in normal service, is warranted by your dealer against defects in material or workmanship for 100,000 miles or 24 months, whichever comes first. Warranty covers full cost of replacement parts . . . full labor costs for first year or 50,000 miles, sliding percentage scale thereafter.

**4. Special fleet financing,** available for owners of two or more trucks, provides the opportunity to precisely tailor payments to your income patterns or depreciation schedules. Let your Ford Dealer explain how this fleet truck finance plan offers substantial savings and frees your working capital.

**5. 36 district offices** staffed with sales engineers and service specialists are on call for special truck problems. Working with both dealers and customers, these experienced truck men represent another extra step Ford takes to provide your continued satisfaction.

**6. Replacement parts depots** at 26 strategic locations across the country quickly supply needed parts from ample stocks. Ford's entire supply system is geared to give you faster service and reduce costly downtime . . . *wherever* you are.

**7. 6,800 Ford Dealers,** including 273 specialized Heavy Duty truck dealers, can keep your trucks ready to go wherever they go. From coast to coast, fast Ford service—gas *and* Diesel—is always close at hand.

From Super Economy pickups to Diesel-powered tractors, you can now fill every truck need up to 76,800 pounds GCW with a modern, money-saving Ford Truck.

# FORD TRUCKS COST LESS

FORD TRUCK
CERTIFIED
ECONOMY
REPORTS

**SEE YOUR FORD DEALER'S "CERTIFIED ECONOMY BOOK" FOR PROOF!**

EVERYONE
TALKS
ABOUT
THE
WEATHER...
...but DUNCAN
performance is unaffected!
HOUR TIME LIMIT
TIME
EXPIRED

Specifically engineered and tested to take the severest of inclement weather in stride. Duncan "heavy-duty" meters offer low-cost, efficient parking control regardless of the season.

"Three-second" lift out mechanism provides for the fastest mechanism exchange possible, greatly facilitating maintenance programs under all conditions.

"Hundreds of cities have traded their "fair-weather" meters for "all-weather" Duncans. Check the operation of your city's installation today.

**DUNCAN PARKING METER**
*DIVISION OF NAUTEC CORPORATION*
835 NO. WOOD STREET • CHICAGO 22, ILLINOIS

*(Continued from page 106)*

highway in Orlando met all requirements of that memorandum, and following submittal of a formal application, full approval of the plan was given by the Bureau of Public Roads through W. C. Peterson, district manager.

### Financing

The Bureau of Public Roads and the Florida State Road Department contribute practically all of the cost of constructing interstate highways in urban areas and both these agencies are obligated by policy to contribute only funds which are necessary to construct the most economical freeway design consistent with interstate and local traffic needs. Therefore, the Bureau of Public Roads and the State Road Department agreed to participate in the cost of the affected section of the interstate route to the extent of their obligations under the original design with the understanding that any additional funds that were required for provision of parking lots would be furnished by the City of Orlando.

Through the efforts of the Orlando Parking Commission, city officials and civic organizations, a $2.75 million bond issue to finance the under-freeway parking and expansion of other lots in the municipal parking system was authorized by the Orlando City Council. Of this $1,200,000 was required to offset the added cost of structure for the Interstate Highway and for the design and construction of the parking lots. The parking lots will be operated by the Orlando Parking Commission and revenues will be obtained by the use of gold-colored parking meters made by the Duncan Parking Meter Co., Chicago 22, Ill. It is anticipated that the revenues from the parking lots under the interstate highway will be more sufficient to retire the proportionate share of the bond issue utilized for their construction.

At the time this article was written, the construction work on the parking facilities under the freeway was over half complete. Sections of under-freeway parking area, even though unpaved, were made available for free parking and downtown merchants were gratified that the new parking facilities afforded temporary relief during the last Christmas season. Cooperation by the construction contractor, the Harbert Construction Co., also played a vital role in providing for the public need.

The statement is often heard that freeway planning and design is not properly coordinated with other phases of city planning in urban areas. In Orlando, the citizens are realizing substantial benefits from cooperation among many agencies, both public and private. ◄◄

## Vehicles Say "When" to Modern Controllers

The Eagle Signal Co.'s ET150 volume-density traffic controller was installed in North Providence, R. I., on a major feeder route, in close proximity to one of two Rhode Island race tracks.

Volume-density equipment was chosen due to the heavy traffic fluctuations throughout the year and guarantees the maximum use of street capacity.

This controller requires that vehicle detection be provided on all approaches to the intersection. Thus the vehicles from all approaches are constantly registered and counted in relation to the traffic on the street having the green light.

The time allowed that green light, as allowed by the controller, depends on three factors originating from the traffic itself. These are:

1. **The time vehicles have been waiting at the opposing red light;**
2. **The number or quantity of vehicles waiting at the opposing red light;**
3. **The density of vehicles moving on the green.**

When demand on the opposing street (cars waiting on red) is present and no "green" street call is received within the settings of the shortest prevailing time of the three factors above, the green light is transferred in favor of the waiting cars.

When vehicle actuations on the "green" street occur at intervals less than the shortest gap allowed by the three factors above, the green light is retained up to the time set on the controller representing maximum green time. Thus, needless waiting for light transfer is virtually eliminated in every instance.

The State of Rhode Island installed five of these signals during the summer of 1960 and three more are presently under contract. ◄◄

***Fred Hesketh, assistant traffic engineer for the State of Rhode Island, supervises electrician Ray McDonald in the final dial settings of the new Eagle ET150 volume density traffic controller, as John Hardman, Jr., senior civil engineer in charge of traffic control, looks on.***

*The Camas Police Department uses this vehicle in its successful enforcement of parking meter regulations.*

# Streamlined Meter Enforcement Helps Police

The Duncan Miller parking meters of Camas, Wash., (population 4,800), are serviced by a three-wheel vehicle manufactured by Cushman Motors, 1021 No. 21st St., Lincoln, Neb., a subsidiary of the Outboard Marine Corp.

Camas Police Chief Leonard Wright says that the Cushman Truckster, which has been equipped with a Motorola two-way radio, provides a means of keeping the parking-meter patrolman in touch with city hall or police cars at all times. Using this two-way communication system the meter patrolman has apprehended shoplifters for he is already in a downtown area and can be at the store in minutes.

As an aid in the enforcement of parking-meter regulations, the vehicle has exceeded all expectations. It allows the meter patrolman to make a complete circuit of parking meters several times faster than he had been able to do on foot. "When we first began to use this vehicle, the number of overtime parking citations picked up sharply," Chief Wright says. "Now they have again leveled off, indicating that motorists are making sure they have sufficient time on their meters."

In reporting the city's income from various sources, the *Camas Post Record* said, "For the first five months of 1960, parking-meter receipts increased to $7,330 compared to $5,951 for the first five months of 1959, according to Dale Scarbrough, city clerk. Parking-meter fines increased 29%." ◄◄

# Memphis Transit Now City Owned

The transit system serving Memphis, Tenn., became a municipally owned operation this year. The purchase price of the physical assets of the Memphis Transit Co. was $2,333,546.

Transit operations will be supervised by a three-member transit authority, appointed by the city commissioners. Other facts given below are supplied by the American Transit Association, 355 Lexington Ave., New York 17.

## Management Contract

The city commissioners also approved the execution by the transit authority (known formally as the Board of Street Transit Commissioners of the City of Memphis) of a management contract with the Memphis Transit Management Co. This is a new corporation composed of three top executives of the Memphis Transit Co.—E. P. McCallum, Jr., president and general counsel; M. G. Tate, operating vice president; and Robert E. Brake, financial vice president and secretary-treasurer.

This corporation was the successful bidder for the management contract. The management arrangement is believed to be unique in the transit industry. The corporation's fee, covering compensation and certain corporate expenses, will be 0.98% of the gross revenue. Gross revenue of Memphis Transit Co. for the calendar year 1959 was $5,352,000.

The corporation will operate the transit system for the city, including the handling of the payroll for which it will be reimbursed. It will also administer labor relations, the employees' group insurance plan, and the employees' pension plan. No changes in personnel are contemplated.

All purchasing will be done by the city, through the transit authority. The members of the authority are: Edmund Orgill, former mayor and formerly head of a large wholesale hardware company; Frank V. Ragsdale, civil engineer, chairman of the city's traffic advisory commission, and chairman of the mayor's transit committee (a recommending body); and Carl Carson, local car-truck rental firm operator.

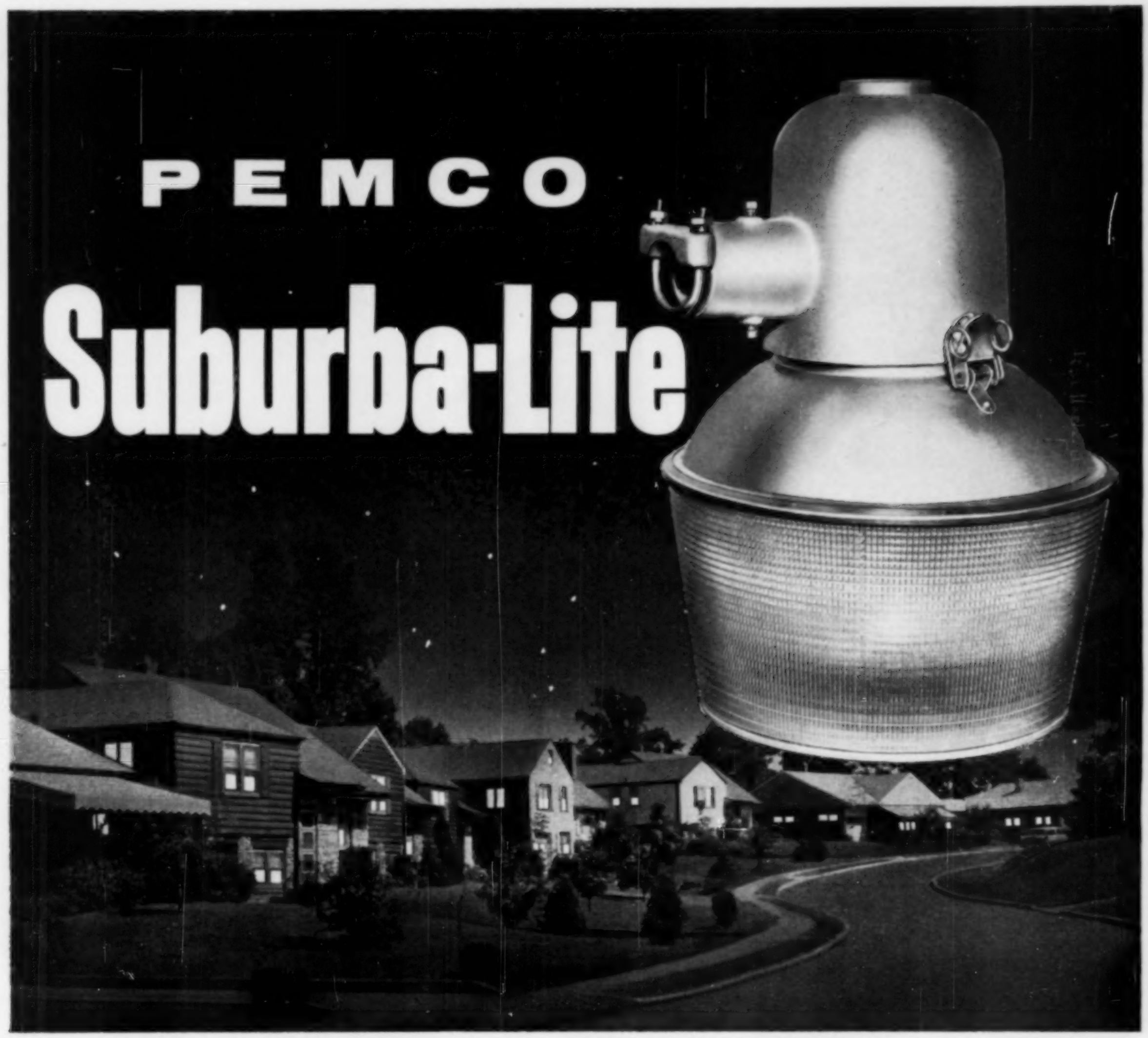
The city commission authorized a $3.5 million bond issue, to cover the purchase price of the transit system and also to acquire new buses.

Through tax and other savings, the new set-up is expected to reduce by approximately $1 million per year the cost of operating the transit system.

No changes will be made in fares—16 cents in the inner zone, 20 cents in the outer zone, 25 cents for express service, and five cents for students and for riders of the shoppers' special. ◄◄

# PEMCO

# Suburba-Lite



**The new PEMCO SUBURBA-LITE is designed for residential streets, parkways, recreation areas, parking areas, home, farm, commercial and industrial protective lighting.**

With side entrance or top entrance EEI-NEMA standard head.
For incandescent lamps or with internal ballast for mercury lamps.
With Pemco-Holophane Open Bottom Refractor for easy relamping and reduced cleaning cost.
IES Type II, Type II-4 way and Type V.
Request Bulletin 128 for complete information.

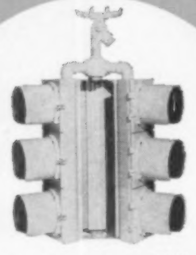
**PHILADELPHIA ELECTRICAL & MANUFACTURING CO.**

*1200-36 N. 31ST STREET P.O. BOX 8359*
*PHILADELPHIA 21, PENNSYLVANIA*

Pemco

PEMCO LIGHTING HAS BEEN QUALITY LIGHTING SINCE 1882

# *A Complete Line of Traffic Signals*
# By ECONOLITE



Three way three section 8″ Signal for Span Wire Mounting #3-E31G1G1A-4003A.

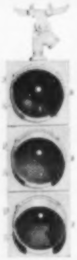
12″ Signal Adapter, "Red Lens" shown installed on 8″ Signal. Adapter Complete, #TA11GGA.

12″ Signal Adapter, "Green Arrow" shown installed on 8″ Signal. Adapter Complete, #TA14GGA.

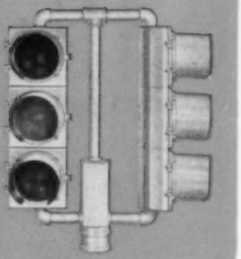
One way three section 12″ signal with Elevator Plumbizer and Backplate #1-T31G2G2A-8002.

## ADVANTAGES

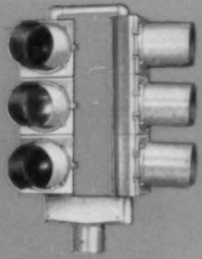
1. Complete assembly flexibility into rigid units.
2. Excellent signal indication and freedom from "sun phantom."
3. Maintenance ease, unsurpassed.
4. Shurlock fittings for positive alignment.
5. Precision die-cast interchangeable parts.



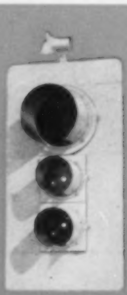
One way three section 8″ Signal for Span Wire Mounting #1-E31G1G1A-4001A.



Two way three section 8″ Signal for Post Top Mounting with Terminal Compartment #2-31G3G1A-3002.



Two way three section 8″ Signal for Horizontal Post Top Mounting with Terminal Compartment #2-E31G3G1A-8005.



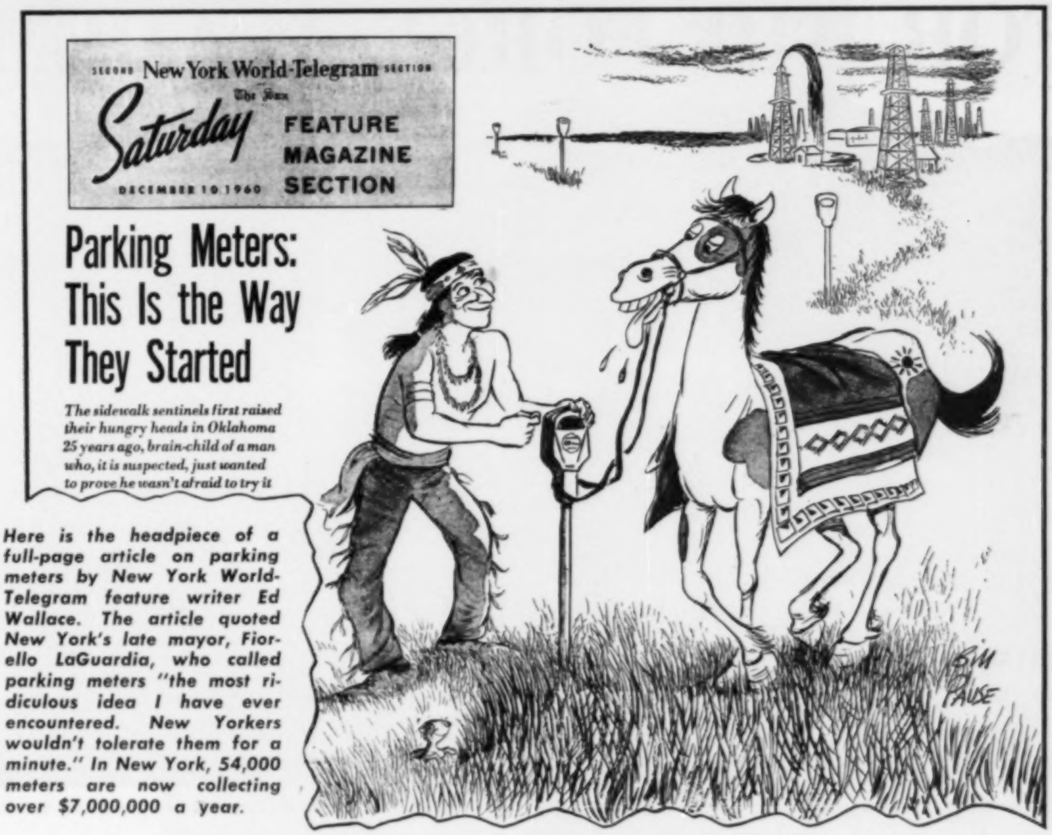
One way three section Combination Signal 12″ Red 8″ Amber and Green with Backplate for Adjustable Mast Arm Mounting #1-C36G1G2A-8011.

ECONOLITE
CORPORATION

*Write for further information...*

ECONOLITE
CORPORATION

*Factory and General Offices*
**8900 Bellanca Ave.,**
**Los Angeles 45, Calif.**



SECOND New York World-Telegram SECTION
The Sun
Saturday FEATURE MAGAZINE SECTION
DECEMBER 10 1960

Parking Meters: This Is the Way They Started

*The sidewalk sentinels first raised their hungry heads in Oklahoma 25 years ago, brain-child of a man who, it is suspected, just wanted to prove he wasn't afraid to try it*

***Here is the headpiece of a full-page article on parking meters by New York World-Telegram feature writer Ed Wallace. The article quoted New York's late mayor, Fiorello LaGuardia, who called parking meters "the most ridiculous idea I have ever encountered. New Yorkers wouldn't tolerate them for a minute." In New York, 54,000 meters are now collecting over $7,000,000 a year.***

# The Latest on Pavement Markings

Section II on markings in the Manual on Uniform Traffic Control Devices* falls in three categories: (1) The new Manual improves and extends the application of pavement and hazard markings. (2) It also standardizes markings by elimination of some previously permissible alternates. (3) It provides new standard tools for the traffic engineer in the field of traffic markings.

Under the first category, the Manual recommends a centerline stripe on all paved highways and requires that all pavement markings having application at night be reflectorized.

## Sight Distance

Because of the reduced height of modern automobiles and the higher percentage of midget cars, sight distance on vertical curves has been reduced from 4½ feet to 4 feet above the pavement in establishment of no-passing zones. In this section the 85 percentile speed has been substituted for the previously used design speed. The length of tapered barrier line at pavement width transitions or at the approaches to an obstruction in the roadway will be determined by a formula based on speed and offset distances.

The Manual requires that all obstructions within the roadway, if not illuminated, be marked with standard reflectorized hazard or clearance markers.

The double white barrier line which formerly existed as a permissible alternate to the double yellow barrier stripe has been eliminated. Although this will provide national uniformity in this important marking, it will involve major changes in equipment and practices in 12 states.

Pavement edge lines are defined as solid white lines two to four inches in width which are to be used as a supplement to and not as a substitute for standard lane lines. This section also provides standards for left-edge lines on one-way roadways and a special design for use on wide paved shoulders to prevent the shoulder being mistaken for an additional traffic lane.

Another new tool which has had considerable use in many areas is established as a standard under the term "channelizing line." It is a solid white line four to twelve inches wide. The solid white line is a useful traffic control device for channelizing traffic and discouraging lane changing. The device is used where traffic may proceed on either side but where crossing the line is discouraged even if not legally prohibited.

The solid lane line may be used through tunnels or freeway interchanges. One of the most effective uses of the channelizing line appears in the new section "Marking of Exit and Entrance Ramps on Expressways." ◄◄

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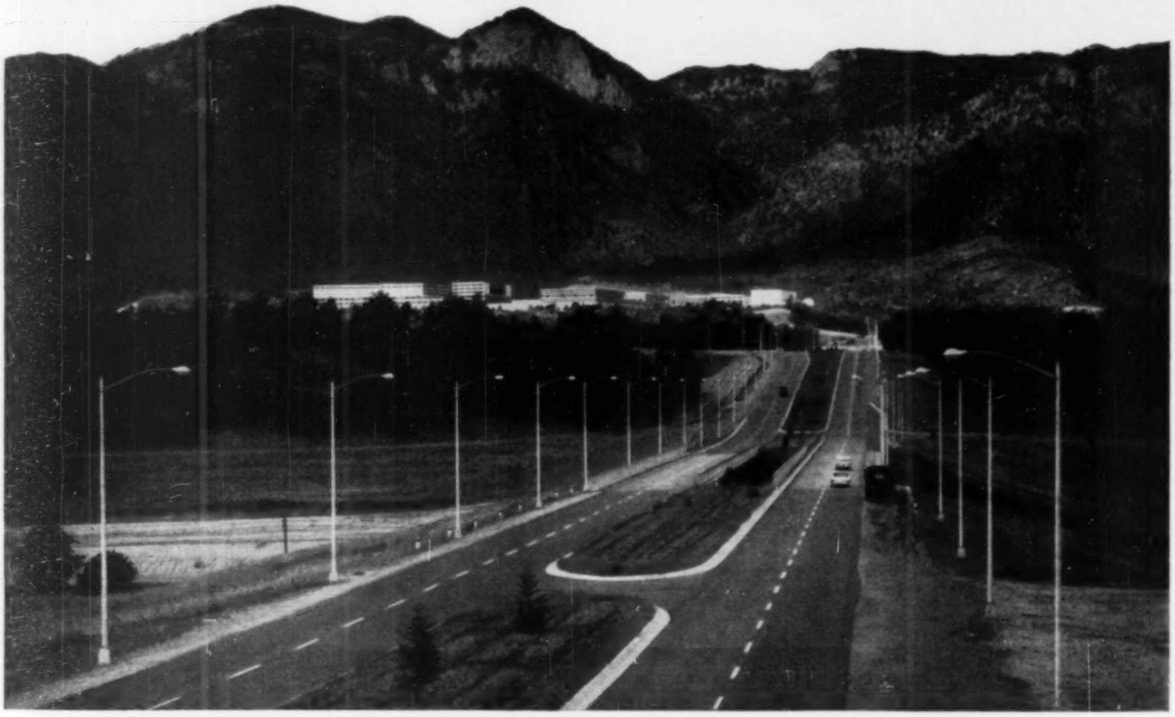
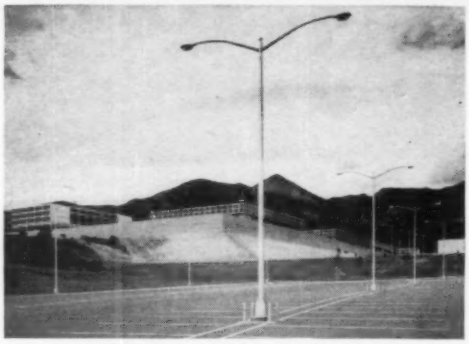
* Available from Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

# MONOTUBE POLES FOR AIR FORCE ACADEMY



**ROADWAY** leading from the North Gate to the Cadet-Academic Area.



**PARKING AREA** on the Academy grounds.

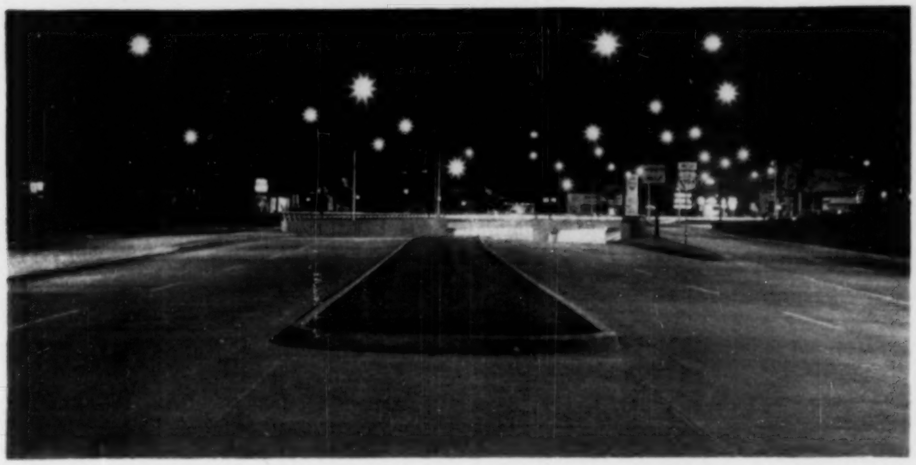
**ATHLETIC FIELDS** use 60′ and 100′ steel poles.

Installations throughout the country prove Monotubes offer the utmost in styling, strength and service.

## UNION METAL

**The Union Metal Manufacturing Co.**
**Canton 5, Ohio · Brampton, Ontario**

***Monotube Engineered Lighting Poles***



*As Wayside Drive goes under Griggs Road, the approach to the underpass and the service roads on either side are brilliantly lighted.*

*On the residential streets, these 20-foot standards and 2,500-lumen lamps are used; the spacing averages 225 feet.*

# Street Lighting Continues in Houston

By **PHILLIP THOMPSON**
Warren Electric Co.
Houston, Texas

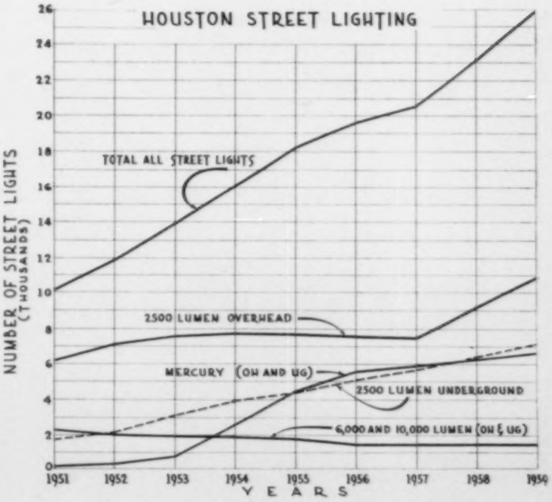
The City of Houston, Texas, has moved up from fourteenth to sixth place in the nation in population. Quality street lighting has grown along with population.

From an airplane Houston is like a jewel when the many-colored sign lights mix with the blue-green light of thousands of mercury lamps. The evenly spaced lights along the thoroughfares radiating from the center of town look like the illuminated spokes of a wheel.

## Even Pattern of Light

Forty percent of the lights are mounted on steel poles evenly spaced to obtain an even pattern of light. The total of all street lights is 26,000. The towns within 60 miles of Houston aggregate 6,500 additional

*(Continued on page 119)*



# Millerbernd

## *Elite* standards

### No other design can do quite as much for your city!

Just look at it and you can see why. Note the modern, clean line from base to Luminaire . . . the graceful, classic curve of the mast arm. Here is functional design that will stay modern . . . design that will be an outstanding feature of your city for years to come.

No other single city improvement of comparable cost has as widespread an effect in stimulating community pride . . . in giving a progressive appearance to your city . . . as re-lighting with Millerbernd Elite Standards.

Functional Elite design gives you a dividend of durability, too. Tapered, integral welded steel base provides a sturdy mounting and armor plate protection against car bumpers and street maintenance equipment.

Millerbernd Standards are built of high-strength steel, available in all standard heights and mast arm lengths. Available for fluorescents, too.

*Modernize for maximum effect, with Millerbernd Elite Standards.*

*WRITE FOR BOOKLET OTA*

**Millerbernd**
*lighting standards*

MILLERBERND MFG. CO.
WINSTED, MINNESOTA

***Wide Richmond Avenue is lighted by 400-watt mercury lamps on steel poles with overhead wiring; the spacing is 120 feet, staggered.***

*(Continued from page 117)*

lights for a Houston-metropolitan-area total of 32,500 street lights. Of these, 12,500 are on steel standards. Those added since 1950 were sold by Warren Electric Co. and manufactured by Kerrigan Iron Works Co., Nashville, Tenn.

### Ornamental Poles

The Houston area can brag most about its ornamental steel-pole residential street lighting. The poles are spaced an average of 225 feet in a staggered arrangement and served with underground wiring. The standards are 20 feet high with a four-foot bracket arm and carry a 2,500-lumen lamp in an enclosed luminaire.

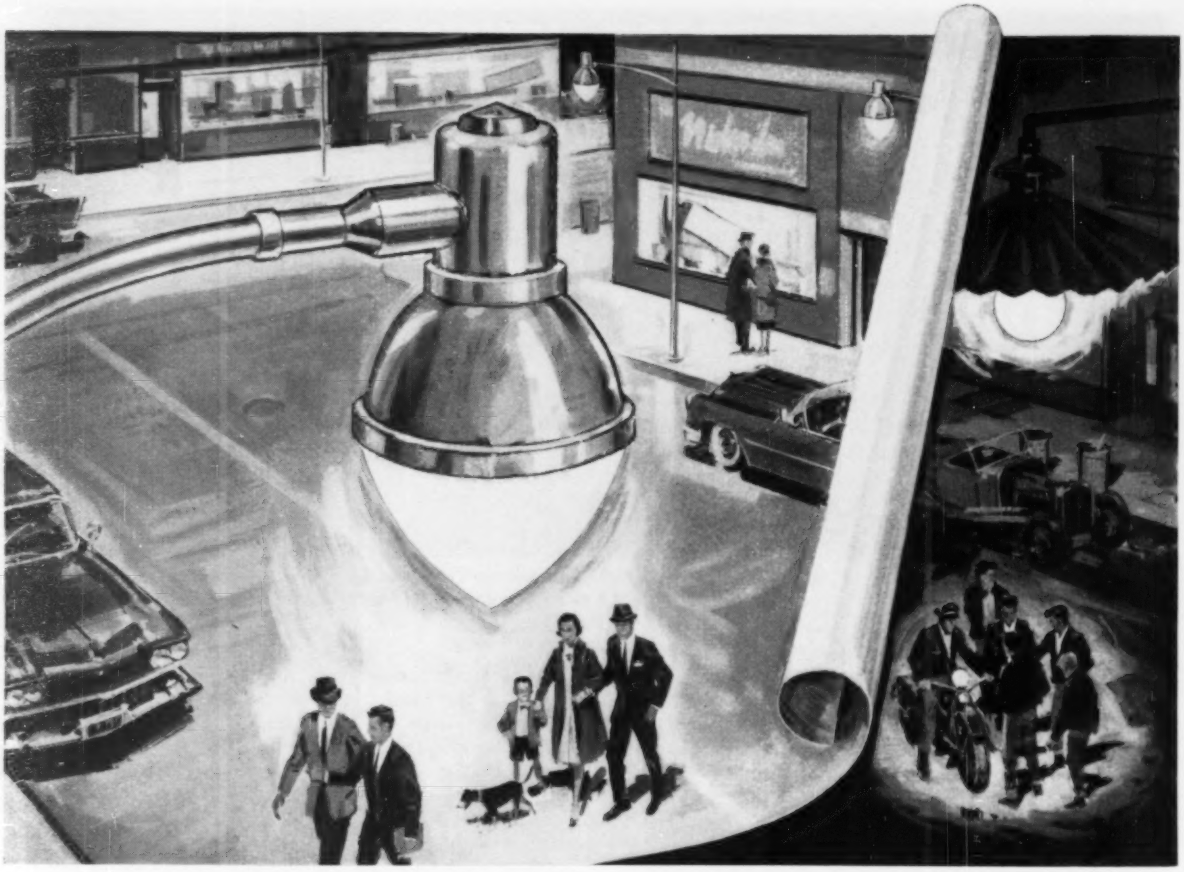
An important reason for the rapid growth in residential street lighting is the city's plan whereby any developer or civic club can deposit five-years' operating cost with the city and the city in turn will authorize the local utility to make the installation in accordance with a street-lighting plan made by the Public Service Department of the city. After the initial five years the city assumes the cost of operating the lights.

Many citizens place so high a value on the residential lights that land developers are generally anxious to install lights in the subdivision as an asset in sales.

Houston, Galveston and many towns in this area use two types of lighting. One is a residential type consisting of 2,500-lumen incandescent lamps and the other uses mercury-vapor lamps to light the principal streets and thoroughfares. It is generally accepted that the streets that do not carry wood pole lines for the electric utility use steel lighting standards. ◄◄

## What's Wrong With This Street Lighting?

***One thing that certainly is wrong is that though this is the central business district of Lake Worth, Fla., it doesn't look like it at night. The street lights are 2,500-lumen incandescents on 12-foot posts. Turn to page 125 and read "Mercuries Rising in Lake Worth;" you will discover what was wrong.***



# How Sylvania Banner Mercury Lamps can help you fight crime and lower your TCL

**New Sylvania Banner Mercury Lamps with Ruggedized features put 2½ times more light on the street than incandescent lamps... for the same power cost!**

You save all along the way when you use these remarkable new higher efficiency lamps.

Ruggedized Sylvania construction shrugs off shocks, vibrations and the roughest weather. The extra long life of Sylvania Banner electrodes – with consistently high lumen output – helps reduce maintenance, too.

Recent advances have extended the lifespan of Sylvania Mercury Lamps to 12,000 hours. Your city can expect to get three full years of light before replacement.

In short, Sylvania Banner Mercury Lamps substantially lower your TCL–Total Cost of Lighting (which means cost of lamp *plus* power *plus* maintenance).

**Sylvania Certified Performance Policy guarantees that:** Banner Mercury Lamps may be returned to the supplier for full exchange if they fail in less than 1000 burning hours, and thereafter (up to 5000 hours) for pro-rata exchange, in accordance with a pro-rata exchange value table set forth clearly in the policy form.

Certified Performance Policy for...
BANNER MERCURY LAMPS
Issued to
SYLVANIA
LIGHTING PRODUCTS

Let your Sylvania representative tell you the whole story. Call or write: Lighting Division, Sylvania Electric Products Inc., Dept. 634, 60 Boston St., Salem, Mass. In Canada: Sylvania Electric (Canada) Ltd., Montreal.

SYLVANIA

*Subsidiary of* **GENERAL TELEPHONE & ELECTRONICS**

## A Light Every 120 Feet On Biscayne Boulevard

An eight-block area from NE Sixth to SW Second Streets on Biscayne Boulevard, Miami, Fla., now has more than five times the illumination it had previously; the increase was accomplished by the replacement of 48 street lights with 95 General Electric fluorescent lights.

A Kerrigan light pole was installed every 120 feet on the Boulevard, as well as the latest in fluorescent lighting—furnishing each pole with 33% more illumination than was available.

The project was finished in time for the Orange Bowl Jamboree Parade, which is seen by millions, either in person or on television.

The luminaires contain four six-foot power groove fluorescent 37,200-lumen lamps. They provide 2½-foot-candles on the street. The former lamps, in service since 1926, supplied 25,000 lumens. ◄◄

*Fluorescents mingle with royal palms on Biscayne Boulevard.*

## Now One of the World's Brightest

In spite of competitors including Chicago's State Street, the Hollywood, Calif., Chamber of Commerce claims its "Walk of Fame" is the world's brightest.

The unique fixtures, conceived in 1957 and constructed in 1960, have five coral-colored stars on each side.

Each unit contains three 700-watt "colortone" mercury lamps developed especially for this installation by the Westinghouse Lamp Division in Bloomfield, N. J. To prevent color distortion and create light complementary to most complexions, a phosphor coating of the bulb and a special filter glass were used.

Each lamp has a life expectancy of 2½ years. Hollywood Boulevard's light level is approximately four times brighter than that on the Wilshire Boulevard Miracle Mile in Los Angeles and it exceeds 10 footcandles as compared with the previous level of 1.2 footcandles. ◄◄

JETS
DETROIT

*Hollywood's "Walk of Fame" at night.*

## Communities from Coast to Coast have learned It's Good Government to Install Good Lighting with HOLOPHANE PRISMATIC REFRACTORS

Civic authorities combating the nation's rise in crime agree on this fact: wherever street lighting has been increased, lawlessness has decreased . . . In their campaigns they have used a most effective lighting combination—Holophane Prismatic Refractors with Mercury Vapor Lamps.

In New York City the plan to fight crime with light was launched in a dramatic manner. In several of the most critical areas, new luminaires equipped with Holophane Refractors replaced old street lights. The results were immediate and convincing. All nighttime crimes dropped sharply along with a marked reduction in traffic deaths and accidents.

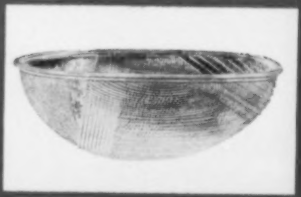
Similar results have been reported by other cities. Chicago, Cleveland, Winston-Salem, Louisville, Flint, quoted significant successes through the installation of new, effective street lighting . . . Nationwide tests have also shown that Holophane Refractors provide appreciable savings in operating and maintenance costs.

**New York City Reports Excellent Results in Crime Reduction . . .**

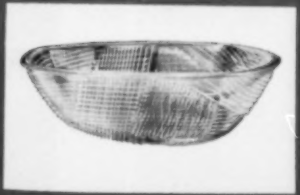
After relighting in several areas, these results were officially reported:

| | |
|---|---|
| Personal Violence Reduced | 49% |
| Juvenile Delinquency Reduced | 19% |
| All Other Crimes Reduced by more than | 10% |

Two of the Holophane Refractors used in Campaigns Against Crime



4071-E for General Electric Luminaire



4027-E for Westinghouse Luminaire

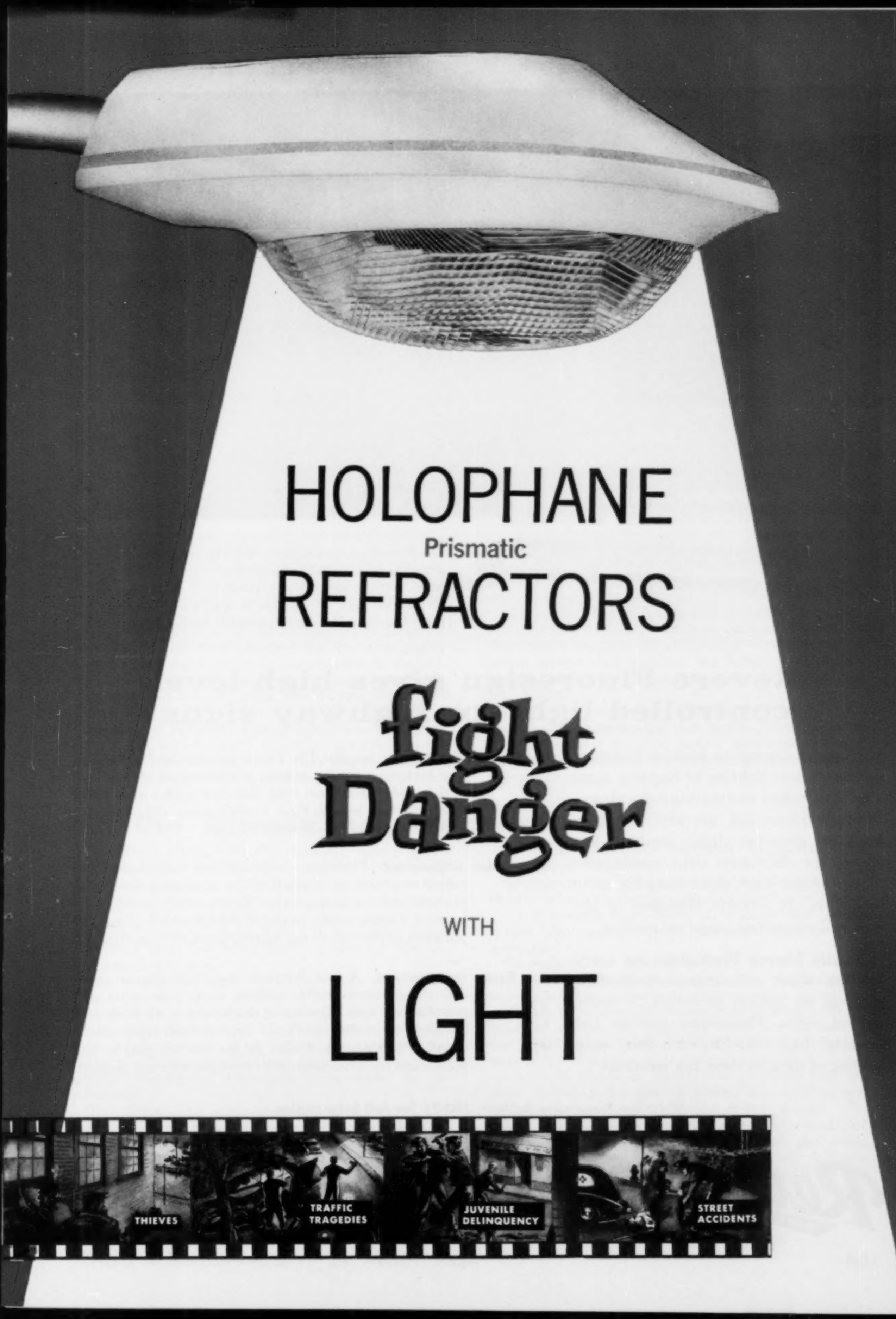
*Write for details of the "Fight-Danger-with-Light" Program*

**HOLOPHANE COMPANY, INC.**

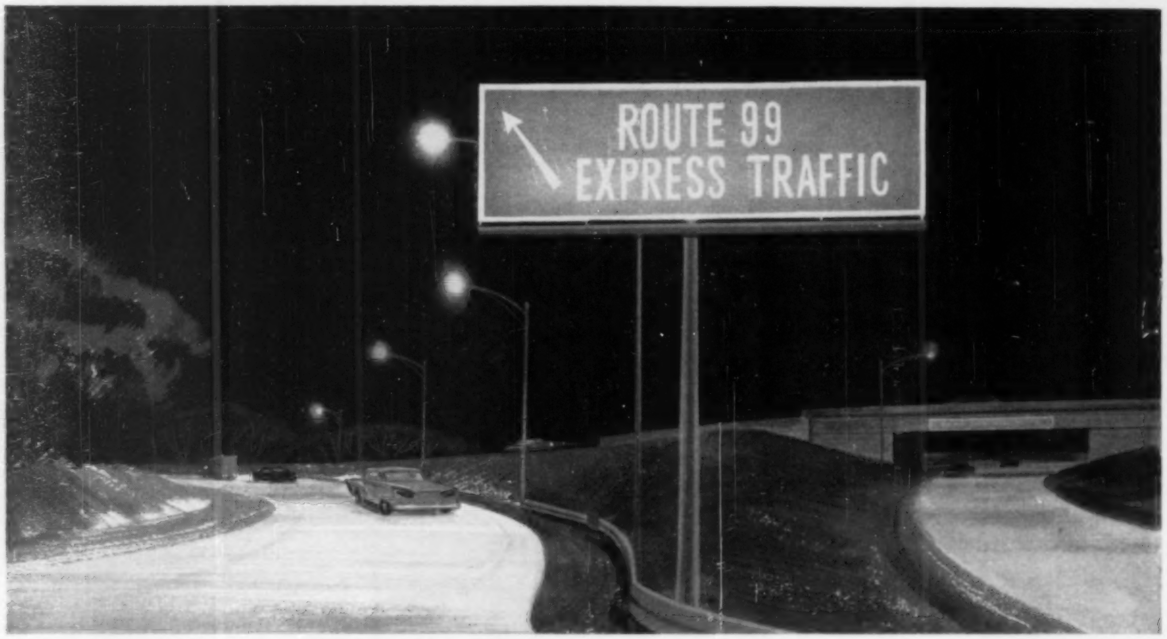
*Lighting Authorities Since 1898* Holophane STREET LIGHTING DEPT., NEWARK, OHIO

THE HOLOPHANE CO., LTD., 418 KIPLING AVE. SO., TORONTO 18, ONT.

**Better Street Lighting Protects against these Dangers ▸**



HOLOPHANE
Prismatic
REFRACTORS
fight Danger
WITH
LIGHT
THIEVES
TRAFFIC TRAGEDIES
JUVENILE DELINQUENCY
STREET ACCIDENTS



*The Fluoresign is an outdoor fluorescent luminaire that provides high-visibility illumination for signs, panels, walls, posters and highway markers. It is modular to fit any size sign. It is simple to install and maintain. Models available for all fluorescent lamp types.*

# Revere Fluoresign gives high-level controlled light for highway signs

High-speed driving on modern highways makes efficient lighting of highway signs a must for safety and driving convenience. Revere's Fluoresign provides the high level of glare-free light needed. The Fluoresign distributes light evenly over the entire sign area, eliminating hot spots and glare. It attracts attention to the sign and allows fast, accurate reading.

Specify Revere Fluoresigns for every location where safe, smooth traffic flow depends on instant attention to traffic control signs. Fluoresigns provide the essential high visibility for fast, easy reading of signs in these key locations.

**Assembles to any length** The Fluoresign can be fitted to any size highway sign by joining combinations of standard 4, 6, or 8-foot reflectors with standard socket assemblies. The reflectors join to form a continuous, unbroken line that blends attractively with the sign.

**Easier adjustment** Fluoresign reflector and lamp assemblies rotate as a unit in relation to the mounting arm. This permits accurate placement of light even while lamps are burning. Degree marks on socket assemblies allow easy adjustment of the unit to the desired angle for best lighting.

**Easier maintenance** A new Butyrate one-piece snap-on cover and the all-compressible sockets make relamping and maintenance easy. The cover shields the lamp from cold weather, helps maintain light output when temperature drops. It won't break, shatter or discolor. Its snug fit lets you mount the Fluoresign with the light directed upward.

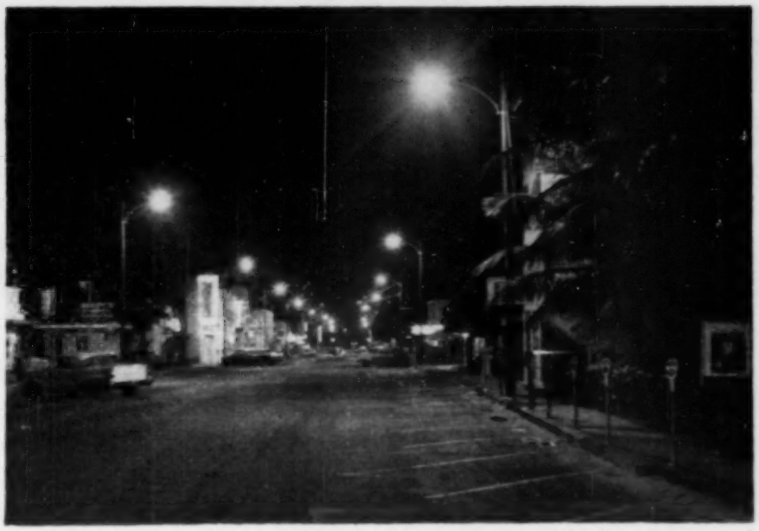
***Write for Fluoresign Bulletin 300-21 for full information***

Revere ELECTRIC MFG. CO.®

**OUTDOOR LIGHTING**

**Revere Electric Mfg. Co. • 7420 Lehigh Avenue • Chicago 48, Illinois (In suburban Niles)**
Long Distance Phone: NIles 7-6060 • Chicago Phone: SPring 4-1200 • Telegrams: WUX Niles
*In Canada: Curtis Lighting, Ltd., Leaside, Toronto, Ontario*

# Mercuries Rising In Lake Worth



***400-watt Revere mercury luminaires light the attractions of Lucerne Avenue including Magee-Hale Park-O-Meters.***

The need for better street lighting in the business district at Lake Worth, Fla., was on the priority list of city officials for many years. This year's city budget appropriated the funds.

City Manager Tom G. Smith and H. B. Bearrow, line distribution superintendent for the municipally owned power plant, surveyed the situation in December 1959 to determine the best starting point. Bearrow submitted the final plans and the city commission approved.

Because of shipment delays, installation of 67 new Revere 400-watt mercury vapor luminaires was not completed until March, 1960. They are mounted on six-foot upsweep brackets attached to 29-foot mounting height on erdalith-treated poles that will be painted aluminum. Poles are staggered 100 feet apart with a street width of 60 feet.

The lights are operated by Fisher-Pierce photoelectric controls with Westinghouse oil circuit breakers. The system replaces the old underground 6.6-ampere series circuit that supplied the 2,500-lumen incandescent lights on 12-foot standards. The total cost was $16,227.

Merchants, who are open Friday nights until 9, are enthusiastic, maintaining that profits have increased during the later shopping hours. Additional lighting for the mushrooming residential developments is in the works now. ◄◄

# All the Streets Are Fluorescent

Cleveland, Minn., with 400 residents, reports code-level all-fluorescent lighting for all its streets. Says Mayor Charles Cook, "Of all the improvements that have taken place in Cleveland in the past years, none was more noticeable than the change in appearance of our village at night." In residential areas, two-lamp and four-lamp six-foot General Electric luminaires are used.

The installation is the first community-wide code-level lighting job on Northern States Power Co.'s system. "We are extremely proud," says Northern States Sales Manager H. T. Westerlund, "that this new all-fluorescent street-lighting installation will make the Village of Cleveland, Minn., the first completely code-lighted community to be served by our company."

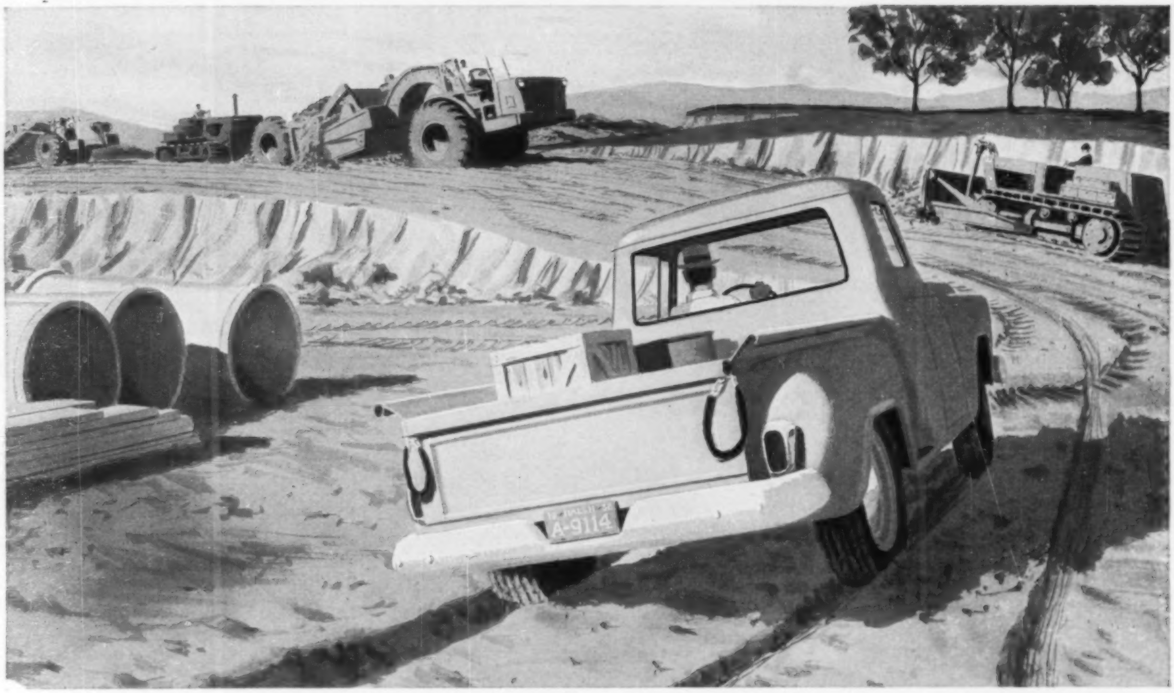
The fluorescent luminaires, which deliver 11,500 lumens each, replaced filament units of 4,000-lumen output. While boosting the lumen output of the individual units, the city mounted the luminaires at 28 feet against the old height of 24 feet. Also, where the old units were 300 feet apart the new ones are only 150 feet. This put 0.26 footcandle on residential streets well above the 0.2 footcandle recommended as a minimum by the American Standards Association. The lights are on wood poles.

Downtown, the village installed 23,500-lumen fluorescent units with staggered 50-foot spacing, producing a 1.3 footcandle level. Here, an underground wiring system was employed with 450-watt lamps in each luminaire.

Throughout, the luminaires were installed in multiple circuits, individually controlled by photo-electric units, providing automatic dusk-to-dawn operation.

Cleveland is one-half square mile in area, with 4.5 miles of streets. Of these, 3.3 miles are classed as residential; 1 as traffic, and 0.2 mile as business streets. To bring the business and residential streets up to code levels is costing each resident $10 per year, including the cost of power, maintenance and relamping, and the amortization of investment.

The lights in the residential area are owned and maintained by Northern States Power; the poles, luminaires and associated equipment in the business district are owned by the village, maintained by the power company. The system was designed by Northern States engineers and installed by Ronning Electric Co. of Kenyon, Minn. ◄◄



# Limited slip differentials . . . produced by Dana Corporation . . . are pulling new cars and trucks through mud and snow

The year 1961 will see fewer vehicles stuck in the mud—and snow. For almost every manufacturer of cars and light trucks offers the limited slip differential—made by Dana Corporation—as factory installed equipment.

The limited slip differential—produced by Dana Corporation . . .

- stops wheel spinning on ice or slick pavement, if one of the wheels can grip the road.
- enables your car or truck to pull out of sticky mud or loose sand if either wheel has traction.
- guards against dangerous swerves resulting from "wheel hop" on rough, bumpy roads.

Because of its safety and convenience features the new limited slip differential could prove as useful and as popular as the automatic transmission. To men who watch costs—the fleet operators—the limited slip differential is a feature that pays for itself in just one or two days of bad weather. Equipped with limited slip differentials at moderate cost, their fleets can maintain service and stay on schedules in the worst winter snows and the heaviest spring rains.

Next time you buy a car or truck, ask your dealer to demonstrate the advantages of the limited slip differential. Sold under many names—it's manufactured by Dana Corporation.

**WRITE** Dana for free copy of booklet that describes how and where the limited slip differential works.

DANA
Spicer

**DANA CORPORATION**
Toledo 1, Ohio

# Tight Municipal Specifications

By **R. G. WESSELLS**
Procurement Officer
Washington, D. C.

Shortly after I bought my last new car, a salesman at an auto show told me my car would only go 114 m.p.h., whereas his would do better than 120. His car could get me home 2¼ seconds sooner each day. Reserve power is always good, but it must be used properly.

"Negotiating authority" is the city purchasing agent's reserve power. He also must use it properly to serve the best interests of his city.

"Negotiation" is a means of collective bargaining. It should be competitive, with several suppliers. It is employed when a formal solicitation of competitive bids is contrary to the public interest. But you cannot reasonably expect as favorable a price through negotiation as from formal competitive bidding even on identical equipment from the same supplier. Yet the purchasing agent must have negotiating authority as "reserve power" he may never use.

R. G. Wessells

An invitation to bid publicly, circulated to responsible business firms, should assure a reasonable price. The bidder knows he has a one-shot opportunity to get the contracts. He must quote his best price.

Specifications are equally essential to negotiation or competitive bids. A procurement specification should state what is required, where and when.

How tight can a specification be? Federal statutes governing expenditure of public funds require that competition be free and open among *responsible* bidders, that specifications be not *unduly* restrictive and that contracts awarded reflect the *best interests of the Government.* The purchasing agent or any other official who spends public monies must insure, first and foremost, that such expenditures are *in the best interests of his agency*—this includes consideration of all factors and not just the original purchase price; that the law is against unduly restrictive specifications; and that the responsibility of the bidder as a business firm capable of fulfilling all phases of the contract is a prime consideration in its award. But, the tightness of a specification must be justifiable, and should be in the form of performance requirements rather than in component descriptions. We don't want the lowest price. We want the most value, which in the final analysis means lowest cost.

The modern concept of specification writing in procurement differs completely from the patent-type specification. The invitation to bid must state clearly and concisely what is required. It must provide a basis for rejecting bids on items not meeting the needs of the service. It must provide a necessary "hammer" to enforce performance under the contract, which includes guarantees, service policies, maintenance facilities. Performance requirements, properly stated, will control this more effectively than penalty clauses or component details.

A purchase specification should not be regarded as a final contract document, nor should it be a technical narration requiring engineers' or attorneys' interpretations. Its preparation should be coordinated with all users within the agency to insure standardization and the benefit of combined thinking. Purchase history records should play a major role in developing the specification. It must be understandable to the salesman, the engineer, all operating levels and, of course, the purchasing agent. It must say what it means to say and not be susceptible of any other interpretation. The final contract should consist of the bid, specifications, general conditions, instructions to bidders and other "boiler plate."

Last but not least, the man who spends public funds must be honest, and look honest. He must maintain an unimpeachable standard of ethical conduct. He must realize that the pride of an official in his operation is a priceless asset to the organization he serves. ◄◄

# Bid Prices to Tennessee Cities

Bid data on a wide array of municipal products are collected and published from time to time by the University of Tennessee and the Tennessee Municipal League. The last two were Technical Bulletin 40 (July 1960) and Technical Bulletin 41 (January 1961).* They are free to public officials. A sampling from the opening six pages of No. 40 is given below:

Johnson City—40,000 pounds of aluminum sulphate for 2.93 cents per pound; 40 tons of calcium chloride for $47.60 per ton including freight.

Kingsport—bulldozer for $20,260 less $5,750 trade-in.

Memphis—$1,592,015 for fire alarm system for the city. This compares with telephone company proposal of $12,461 per month plus installation charges of $26,059 plus $6,736 nonrecurring rental. For three 1,000-gpm pumping engines, $116,388. For year's supply of 227,000 traffic violation tickets, $5,670.

Elizabethton — 750-gpm pumping engine, $10,393.

Maryville—14 pairs of handcuffs with holster, $15.20 per pair.

In Bulletin 41, several municipalities reported prices submitted for fire trucks. Three cities purchased pumping engines of 750-gpm: Alamo, Tenn., population 1,500, paid $15,000 for pumping engine on a Chevrolet chassis with 500-gallon tank and 1,600 feet of hose; Sewanee, population 1,400, purchased a 750-gpm fire truck mounted on a Chevrolet chassis and equipped with a 500-gallon booster tank for $12,000; Harriman, population 6,300, paid $10,300 for a 750-gpm pumping unit, a 750-gallon tank and 1,000 feet of hose, to be mounted on a truck chassis bid at $3,478.

Chattanooga bought one compact car for $1,433 to be used by the audit

*(Continued on page 129)*

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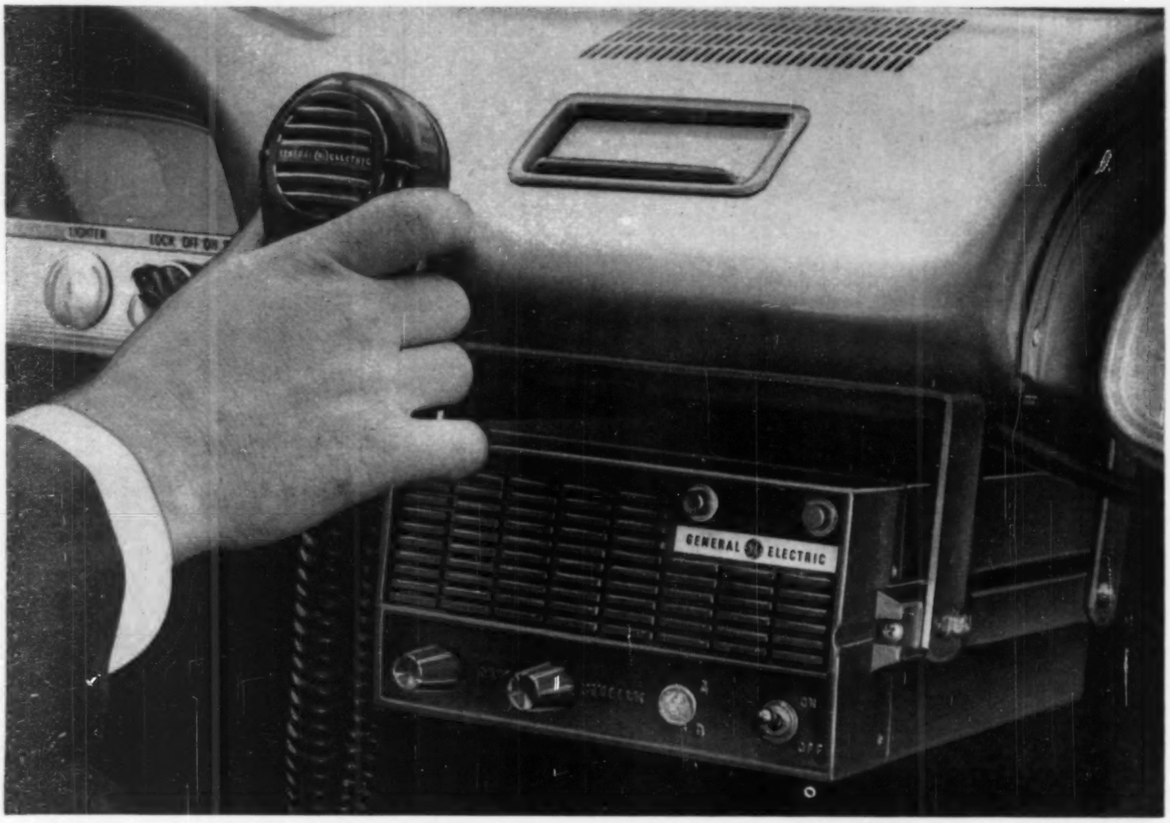
* The editor of the publication is M. U. Snoderly, Municipal Technical Advisory Service, P. O. Box 8500, University of Tennessee Station, Knoxville, Tenn.



# NOW! A high-quality FM two-way mobile radio for only $419!

**The General Electric Pacer...**

. . . the all-new two-way mobile radio that gives you every advantage of quality FM communication at the low, low price of only $419.00.

The General Electric Pacer gives you communication range comparable to more expensive sets. Its low battery drain (the lowest of any in its class), of 4.2 amps means no special generator, no heavy duty battery, longer battery life. A real money saver!

It is lightweight and small enough to fit even in the new compact cars with ease. Installs in minutes. *And, of course, you get the full communications quality of FM radio built by General Electric!* Channel Guard protection against nuisance calls and skip signal interference also available at extra cost.

To learn the complete details on the low-cost General Electric Pacer, look under Radio Communication, in the Yellow Pages of your classified telephone directory. Or write: General Electric Company, Communication Products Dept., Section 141, Lynchburg, Va.

GENERAL ELECTRIC

*(Continued from page 127)*

division and later purchased ten compacts for $15,970. Police cruisers were purchased as follows: Athens received a bid for $2,348 for a new police cruiser (no trade-in); Knoxville—$19,568 low bid on eight two-door sedans, $17,388 on seven four-door, or a total of $36,956 for the 15 cars, with allowance of $7,262 on 18 old police cars.

Range of five bids for street flushers received by Jackson was $3,969 to $4,562. Maryville received a bid for $4,098 for a 1,600-gallon flusher installed on a city truck chassis.

Four bids received by Jackson for a street sweeper ranged from $9,550 to $12,565. The city bought 2,000 pounds of gutter broom wire @ $29.45 per 100 and 2,240 pounds of broom fiber at 12½ cents per pound.

Dyersburg let a contract for an aluminum pool, 75 feet long and averaging 40 feet wide, with filter system. The city excavates, pours piers, and completes 6,000 square feet of concrete deck. The total cost runs to $45,000.

The remainder of the pages list unit bid prices in the fields of street construction, wastewater works and water works. ◄◄

## Legal Action to Save Historic Building

Philadelphia went to court recently to compel the owner of a historical mid-city property to eliminate an illegal alteration which mars its pre-Civil War exterior.

The order will attempt to compel the owner to dismantle an unauthorized "penteave" on this structure.

The penteave is a two-foot wooden projection having an asbestos shingle covering, running the width of the property above the front door and two ground-story windows. Under Philadelphia's ordinance, Department of Licenses & Inspections cannot issue a permit for an exterior alteration to a historical property without the approval of the Philadelphia Historical Commission.

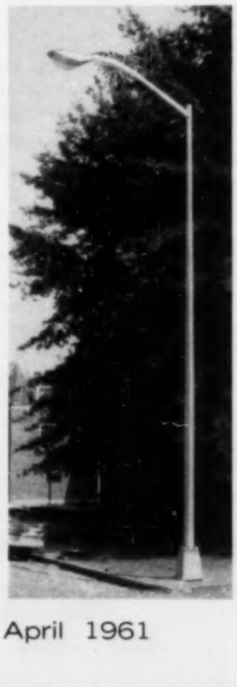
The Commission has certified that the property is historical and the penteave is out of keeping with the structure's Greek revival style.

John Welsh, a well-to-do merchant, built the structure in 1844. Later it was occupied by Dr. Joseph Carson, who helped to establish Philadelphia as a medical center.

The Commission has been successful in persuading owners to eliminate illegal alterations to historical properties without court action in several previous instances. ◄◄

WHAT A DIFFERENCE!

**What a beautiful difference**
**P & K ALL-ALUMINUM LIGHTING STANDARDS**
**can make in any community**



This is High Street, Pottstown Borough, Pa., a busy shopping section and a major traffic artery. As part of a planned relighting program, Philadelphia Electric Company replaced the old-fashioned, inadequate cast iron standards with modern, 30-foot tapered aluminum standards by P & K; replaced the incandescent luminaires with mercury vapor.

The difference is tremendous—by night, safe well-lit streets that are an invitation to shoppers; by day, handsome, modern looking standards that reflect a progressive community. And, it's good to know that P & K standards never need painting or other costly maintenance. For the complete data on P & K street and area lighting standards, please write.

P&K

**PFAFF & KENDALL**
84 Foundry Street, Newark 5, N. J.

*Branch Sales Office San Jose, California*
*In Canada: Powerlite Devices LTD.,*
*Toronto, Montreal, Vancouver*
*Export Representative: Philips Export Co., N. Y., N. Y.*

***Public housing units arise to replace slum areas.***

# Good Planning Brings Visible Benefits

## . . . to a small city in the form of better streets, off-street parking, more parks, subdivision control

***Parking lots with ample capacities such as these demonstrate the value of Harrisonburg's master parking plan.***

By **W. E. AYERS**
Director of Planning
Harrisonburg, Va.

Planning here received its greatest impetus in 1952 when Harrisonburg changed to the council-manager form of government. This has proved much more efficient than the old form under which the nine councilmen formed committees to operate the various city departments. In spite of the city's growth the tax rate continues at only $2.50 per $100 of assessed valuation, which is 40% of appraised value. The city's present population is 12,000. It has been gaining 22½% per decade for 30 years.

Planning activity, of course, goes back many years. The city adopted its zoning ordinance in 1939, just two years after creation of the first planning commission. Many improvements resulted from the work of these early planners.

In 1953, the new government reorganized the planning commission, hiring a full-time planning engineer who, with the city manager, now assists the commission in formulating plans.

## Survey

When the new planning commission was formed, one of the first jobs it tackled was a survey of existing social, physical and economic conditions in an effort to improve our codes, procedures and policies. From those studies we have developed plans which provide for the control of land subdivision; a major street plan; a master park and recreation plan; a new zoning map for the city; and we bringing the city's zoning ordinance up to date.

With an aggressive leadership, we have been able to accomplish some of our most needed projects.

When our master plan is complete we expect to keep it alive in the eyes of the people, changing it to meet our changing needs and keeping it as a constant reminder of our goal as a "planning city."

One of our most vexing problems is that of substandard streets and the need to relocate some of them. To solve this, we have enlisted the help of the State Highway Department in preparing a major-thoroughfare plan. This plan, together with a master land-use plan, a community facilities plan and a public-improvements program, have been presented to the Council and will soon be adopted.

The following are other items:

**1. A master parking plan completed late in 1958. Since then we**

***(Continued on page 135)***

Now . . . a 2-color portable striper

# The Wald Tandem Tanker does it!

The new Wald Tandem Tanker quickly converts a standard Wald Model 16 Reflecto-Liner into a two-color machine, or doubles its paint capacity for a two-gun single color operation. Inexpensive, but invaluable in helping you conform to new Federal two-color marking standards, this accessory, with the Wald Model 16 is an unbeatable combination for economy and efficiency where the volume of striping does not require a truck-mounted machine. It may also be used with a Wald Model 12 to stretch the striping time without refilling.

*Update your equipment in time for this year's striping season.*

Wire or phone today for information and prices.

## The Wald Tandem Tanker gives you these benefits:

- **Doubles paint capacity (30 gallons)**
- **Two-color operation conforming to new Federal standards (with Wald Model 16)**
- **Operate from sitting or standing position**
- **Perfect balance for easy steering**
- **Positive braking action**
- **Adjustable wheels to prevent tracking**
- **Detachable for optional use**

**WALD**

**TANDEM TANKER**

*For new developments the world looks to Wald, Inc. the leader in highway marking machines.*

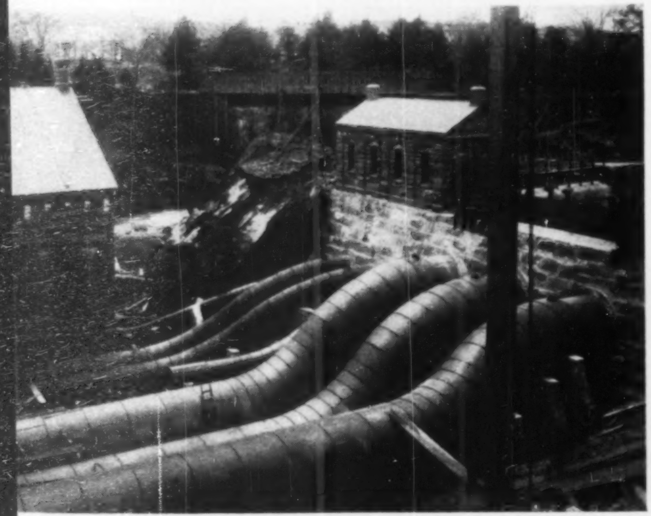
**WALD INDUSTRIES, INC.**

HUNTINGDON, PENNSYLVANIA

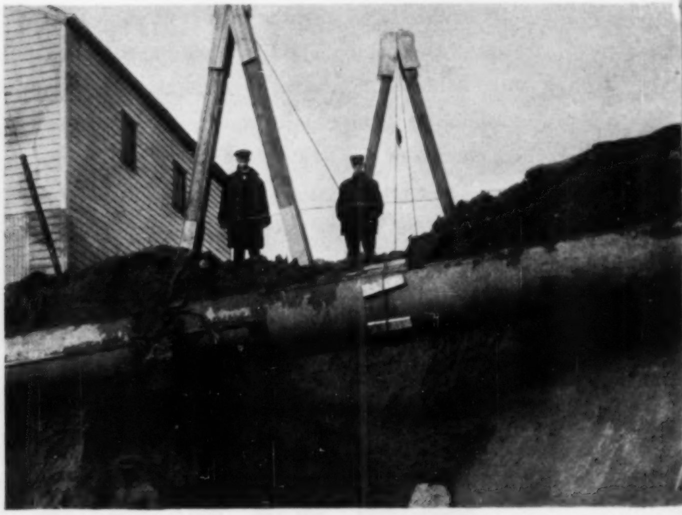
# FROM COAST TO COAST MORE CITIES REPORT:

1912 Denver—This 60-in. ID main was laid through a tunnel and over the South Platte River. The Water Department reports that despite a temperature range of 120 deg, "the pipe is in very good condition and is still giving satisfactory service."

1909 Springfield, Mass.—Originally installed with the expectation of serving perhaps twenty years, Springfield's 22,000-ft, 42-in. ID supply main is in its fiftieth year. Flow tests show, according to the Municipal Water Works, "that steel lines with proper coatings will give very long life as far as carrying capacity is concerned."



1899 Passaic Valley, N.J.—These are the giant steel penstocks at Little Falls pumping station. Since then the major portion of the water supply for the cities of Paterson, Passaic, and Clifton has passed through these venerable pipes.

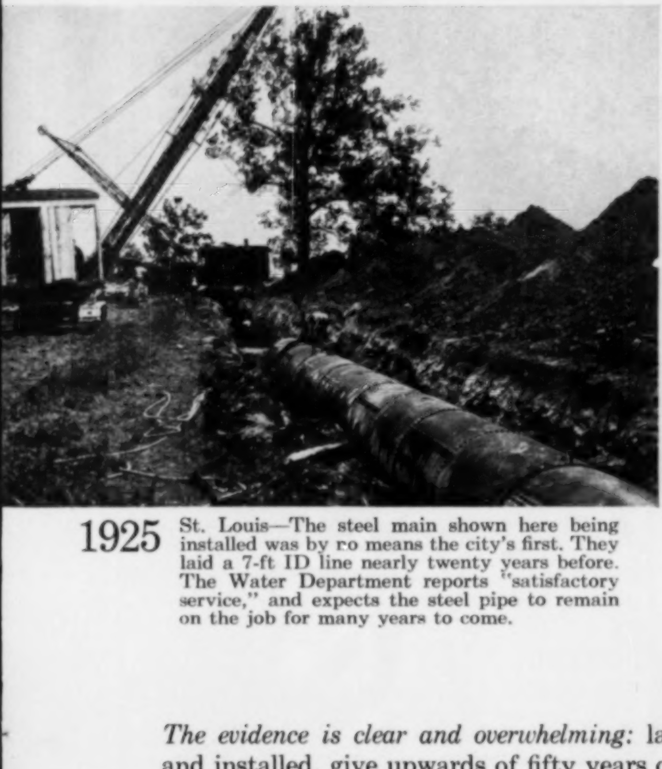


1921 A washout completely undermined this thin-walled (¼ in.) 30-in. steel main in Paterson. It held—even before being supported as shown here. Could any other pipe material stand the gaff?

Steel

*for Strength*
*. . . Economy*
*. . . Versatility*

# *"Our old steel mains are still on the job"*



**1925** St. Louis—The steel main shown here being installed was by ro means the city's first. They laid a 7-ft ID line nearly twenty years before. The Water Department reports "satisfactory service," and expects the steel pipe to remain on the job for many years to come.

**1896** New Bedford, Mass.—The service life of the city's 8-mile, 48-in. ID steel main has spanned the years from horse-and-buggy days to the jet age—with never a failure.

*The evidence is clear and overwhelming:* large-diameter steel mains, properly protected and installed, give upwards of fifty years of eminently satisfactory service.

What's more, steel pipe is not subject to the costly and annoying failures that plague pipe made of brittle materials.

Remember: *every single length of steel pipe is tested at the shop in accordance with AWWA standards—usually to twice the working pressure.*

Specify tar-enameled steel pipe for your next water main.

**For information about our new types of slip-joint pipe for fast, economical installation, contact the Bethlehem sales office nearest you.**

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA. Export Sales: Bethlehem Steel Export Corporation

**BETHLEHEM STEEL**

BETHLEHEM STEEL

J. E. Moran, *Superintendent of the Princeton, Illinois power plant points out the facts to chief operator* Joe Lawes . . .

# *From Princeton:* A lesson in engine economy

The facts from Princeton, Illinois are: in seven years' operation of Cooper-Bessemer engines, repair costs have been nil! They've never had the heads off. Maintenance has been confined to annual inspection and cleaning. The Turbocooled 4205 hp LSV-16 shown has operated 16,281 hours since installed in 1958. A 3600 hp LSV, installed in 1953 has logged 25,471 hours.

When you're planning expansion or modernization, take into account the proven economy of Cooper-Bessemer engines. Get all the facts from our nearest office.

Cooper-Bessemer

**GENERAL OFFICES: MOUNT VERNON, OHIO**

ENGINES: GAS · DIESEL · GAS-DIESEL
JET-POWERED GAS TURBINES
COMPRESSORS: RECIPROCATING AND CENTRIFUGAL

*(Continued from page 130)*

**have completed a parking lot with 239 spaces and another with 92 spaces which is at present being expanded to provide 262 spaces.**

**2. A master park and recreation plan, adopted in 1956, will, when completed, provide both neighborhood and community facilities.**

**3. A subdivision control ordinance, adopted in mid-1958.**

**4. A minimum standard housing code, effective in June 1960.**

A proposed annexation of about 4½ square miles will make it necessary for us to adapt these plans to the new area.

We are justly proud of our city and feel we have accomplished much, for we were awarded the Virginia Citizens' Planning Association Award for 1958 for "distinguished and substantial public service and progress in making the City of Harrisonburg "The City with the Planned Future." But we also feel that the real well being of our community is directly related to the well being and happiness of all our citizens. This we know is not attained fully as long as a high proportion of our citizens continue to live under slum conditions with poorly planned and congested streets. We are determined to eliminate bad housing and the conditions that made it possible.

Our Redevelopment and Housing Authority is presently planning the redevelopment of a large portion of the slum areas and the adoption of a minimum-standards housing code. This phase of our work is underway. Our city government, under the guidance of the city manager, will focus attention on rehabilitation and conservation, and the enforcement of the city codes to provide better housing.

We feel that displaced families are entitled to adequate housing and we will accept the responsibility for providing it.

As the city moves into the housing program, we plan to foster greater citizen participation. We recognize that to be successful the full support of the people is necessary. We have this support for other phases of our planning work. Advisory groups have been appointed to work with the Planning Commission on each phase of the master plan. The Planning Commission and the Housing Authority are encouraging the development of groups in each neighborhood of the city.

We like to think that the Harrisonburg City Council is a citizens' group, and our various boards and commissions are in the same category. We have sought to enlist the aid of civic, social, fraternal and religious groups in carrying out our program. Citizen participation has been good in the past and we know it will prove so in our planning and housing programs.

One hundred units in two public housing projects now under construction will be completed by April 1961. These should handle our relocation problems for several years. The Redevelopment and Housing Authority has entered into a contract with the Urban Renewal Administration for the redevelopment of about 32 acres in the northeast section of the city.

Our newspaper, the *Daily News Record*, radio stations WHBG and WSVA, and television station WSVA-TV have been most helpful in keeping the people informed of the progress of our planning and housing programs. Our citizens have responded so enthusiastically that we firmly believe that Harrisonburg will deserve the title, "The City with the Planned Future." ◂◂

now... TWO "modern"

EARTH AUGERS

TRACK-MOUNTED MODEL

*for accuracy and operation ease*

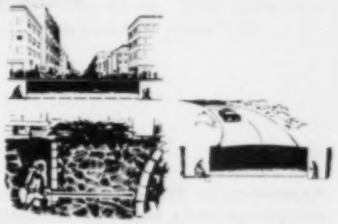
Track-mounted power model has one-man operation; drills laterally up to 14" hole at rate of 5' per minute; drills long range, 200' or more; powered by Briggs & Stratton engine; accurate, portable; Hydrodynamic dirt flush action.

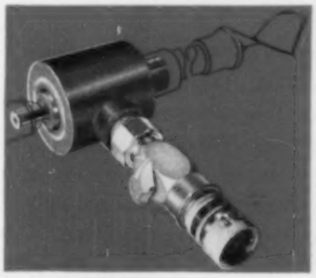
3 H.P. $430.00 f.o.b., Exeter, Nebr.

5 3/4 H.P. $495.00 f.o.b., Exeter, Nebr.

CUT LABOR COSTS

"MODERN" Earth Auger—either track-mounted or hand-held model, drills under shrubbery, lawns, walks, terraces, streets, railroads, highways without damage to property or disrupting traffic. Water pressure flushes out dirt loosened by the auger; return auger bits will enlarge hole to desired size on return drilling.





HAND-HELD MODEL

*for Economical Drilling*

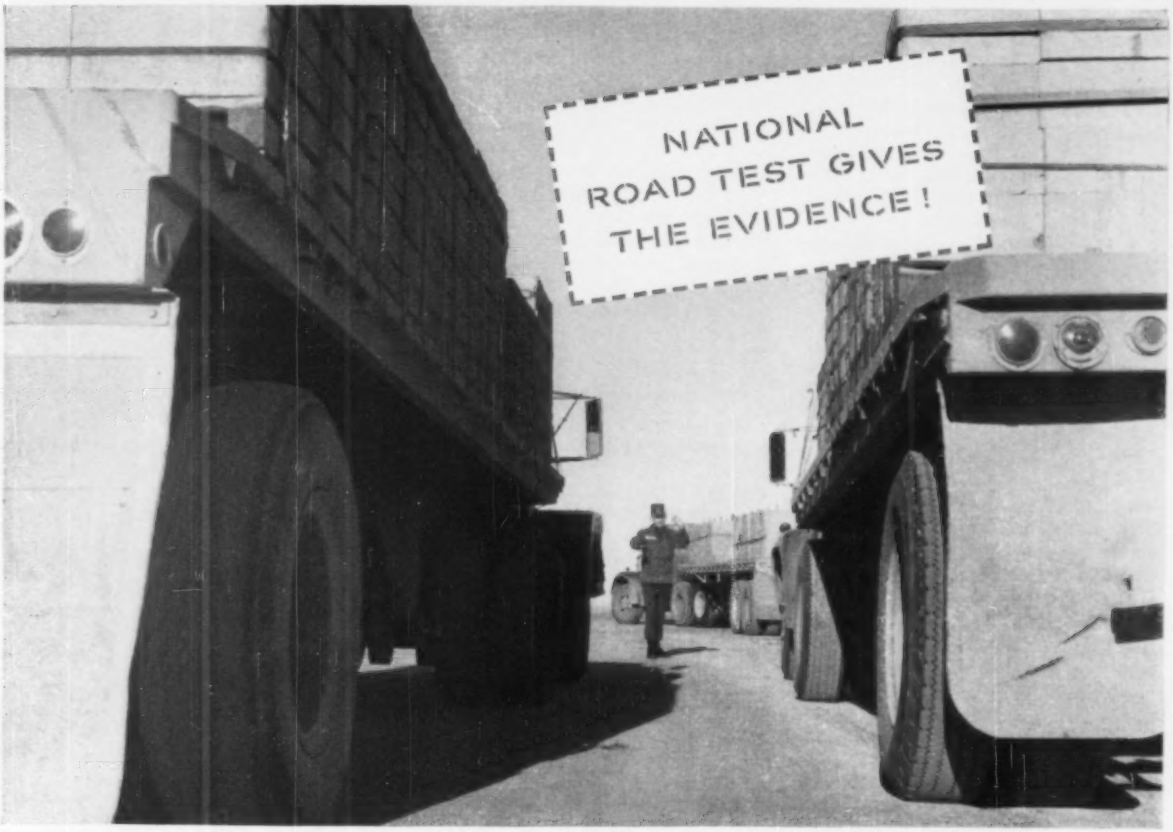
Hydrodynamic dirt flush; first job pays for itself, 4" and up dia. return augers; extension shafts 5' length, ¾" dia. available; use any length pipe.

Complete with 2" pilot auger with ½" or ⅝" drive shank. $49.95

*Contact your wholesaler or write:*

Modern Products, Inc.

Dept. AM. *P.O. Box 344* *Exeter, Nebraska*



# Concrete wins over asphalt these basic ways...

**Sponsored by The American Association of State Highway Officials (AASHO)** . . . directed by the Highway Research Board of the National Academy of Sciences—National Research Council. Here is the most scientific pavement test ever made. Accurate instrumentation checked performance of test sections during 2 full years of traffic. 99 trucks, 19 hours daily, 6 days a week. There were 17 million miles of travel—1,113,762 load applications!

## 1

### DURABILITY

A count of pavement sections surviving in the great National Road Test, after two full years of traffic, showed concrete outlasted asphalt 3 to 1! Here is new confirmation that concrete gives more for tax dollars.

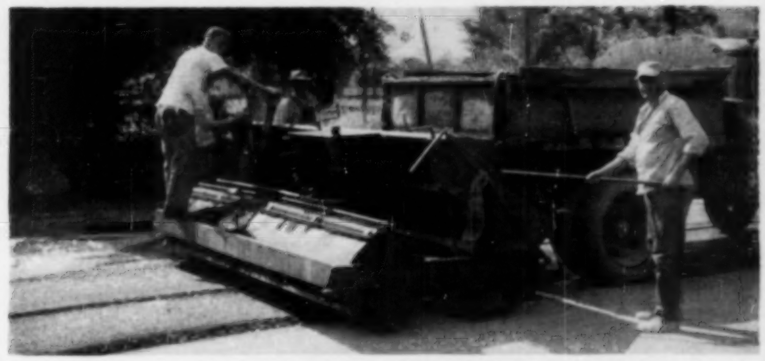
## 2

### DRIVING COMFORT

In ratings of how test pavements retained the riding quality they started with, concrete won over asphalt by a wide margin. Only concrete can give lasting driving comfort without excessive maintenance.

**PORTLAND CEMENT ASSOCIATION**

*A national organization to improve and extend the uses of concrete*



*Four men make up the asphalt laying crew (above), with one man also serving as the roller operator (right).*

# Covington, Va., Stretches the Paving Dollar

## Costs dropped one third under the city's new, expanded street-resurfacing program

By **HOMER F. KOHNE**
Sup't. of Public Works

Now that Covington owns and operates its own asphalt plant and other equipment necessary for street-construction work, we feel that we can resurface approximately one third more streets for the same amount of money previously spent and in many cases wind up with a better job.

Covington, with a population of some 11,000 persons, has 40 miles of streets of which approximately 35 miles are improved with some type of hard surfacing. The responsibility for maintaining these streets rests with the Division of Streets in the Department of Public Works.

For the past few years, the city engaged private contractors to lay approximately 1,500 tons of hot-laid plant-mix asphalt each year at an in-place cost of approximately $9.80 per ton. In addition, our own forces resurfaced four to five miles of streets each year using mixed-in-place treatment.

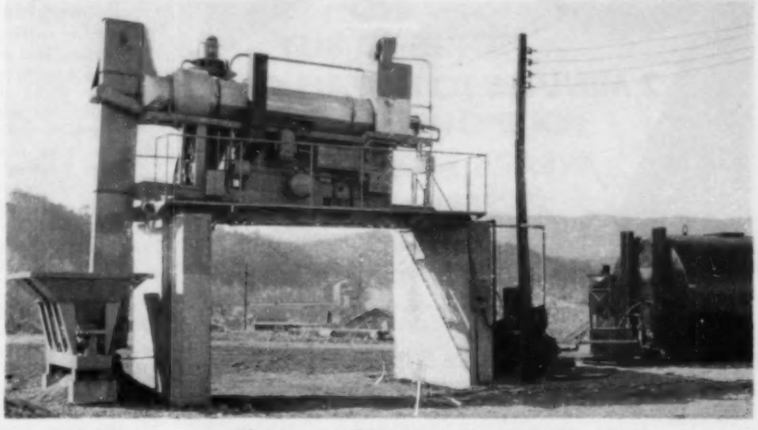
Because of the relatively high cost, plus the fact that private contractors were not always available when needed, the city decided, after careful investigation by City Manager Earnest L. Thacker, to do its own resurfacing work. Accordingly, in September 1959, the city purchased a Wylie Model 1520 Roadmaster asphalt plant of 15- to 20-tons-per-hour capacity.

The plant is permanently mounted with electric drive and utilizes natural gas for fuel. Auxiliary equipment includes a Chausse 5,000-gallon gas-fired storage tank and a Grace two-inch skid-mounted asphalt pumper. We also purchased an I. J. Overman S-9 ten-foot spreader. The city already owned a Buffalo-Springfield 8-10 ton tandem roller and an Etnyre distributor. With this equipment we were ready to go into business for ourselves.

We started operation in June of this year and by the end of July had produced and put down approximately 3,000 tons of material. The work program for the year beginning July 1, 1960 calls for the resurfacing of about five miles of city streets during the summer.

A regular city crew of eight men does all the work. The plant re-

*(Continued on page 138)*



*The new asphalt plant gives the city a constant supply of well mixed, high-quality street-resurfacing material at a considerable saving.*

*(Continued from page 137)*

quires two men, one operator and a second man to charge the aggregate hoppers. Four men work with the spreader and, after the mix has been laid, one of these men compacts it with the roller. Although we utilize three dump trucks, only two drivers are required.

The asphalt mixture produced by our plant generally conforms to the Virginia Department of Highways specifications for I-3 bituminous concrete. It consists of crushed limestone and AP-3 asphalt cement (85-100 penetration). The aggregate gradation is as follows:

| Sieve Size | Percent Passing |
|---|---|
| ½ inch | 100 |
| ⅜ inch | 80-100 |
| #4 | 50-70 |
| #10 | 35-50 |
| #40 | 10-25 |
| #80 | 3-15 |
| #200 | 2-10 |

The asphalt content by weight of total mix runs between 5.5% and 7.5%. Prior to applying the plant mix, which is laid at a temperature of 275° to 300°F, we treat the surface with a tack coat of RC-2 asphalt, using about 0.15 gallon per square yard.

Our cost, based on about 3,000 tons produced at the time of this writing, is approximately $6.60 in-place, or about one third less than we formerly paid.

We also prepare the base for new streets, starting out with eight inches of pit-run creek rock which is graded and compacted to the proper cross-section. This is covered with two inches of one-inch crusher-run limestone and primed with RC-2 asphalt applied at the rate of 0.3 gallons per square yard. Finally we cover this with crushed limestone chips at the rate of 25 pounds per square yard.

## Other Benefits

We will also use the plant to produce hot mix for patching operations on a year-round basis, which gives us the advantage of having the material when we need it without relying on some outside source. Also, the hot-laid plant mix provides a much better surface than the mixed-in-place material formerly used.

Our long range plan calls for the resurfacing of all the city's improved streets with this hot-mix material. This goal appears much closer now that we can resurface approximately one-third more streets for the same amount of money spent in former years with contractors doing the work.

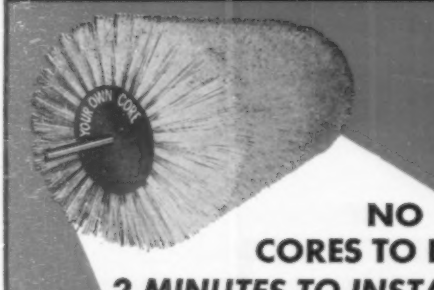
The city pays the entire cost of all resurfacing out of general tax funds, since in Virginia abutting property cannot be assessed for street improvements. ◄◄

## New Jersey Updates Municipal and County Laws

New Jersey's Governor Meyner has just signed into law the first portion of revised statutes which will cover all municipal and county law in New Jersey. This first portion covers mainly the bond law, budget and fiscal affairs.

The project of revising and updating these statutes is a task of a legislative commission which has been at work on it for three years now. The commission anticipates that it will take another year or so to complete as the statutes have not been revised for several decades. ◄

RADAX® PREFABRICATED BROOMS



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CORES TO BUY
2 MINUTES TO INSTALL ON
YOUR OWN CORE
WEARS FOR MONTHS
SWEEPS CLEAN
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PRICES
DELIVERED TO YOUR SHOP

| SWEEPER MAKE and MODEL | SR FILAMENT | TYNEX NYLON |
|---|---|---|
| MOBILE 54" BROOM | $195.85 | $293.15 |
| MOBILE 58" BROOM | $208.30 | $310.60 |
| WAYNE 450, 460, 520 and 550 | $169.75 | $252.50 |
| ELGIN STREET KING | $258.20 | $388.10 |
| ELGIN WHITE WING | $258.20 | $388.10 |
| ELGIN 20, 30, and 81 | $270.15 | $399.95 |
| AUSTIN-WESTERN 40 | $208.15 | $303.55 |
| AUSTIN-WESTERN 60 | $230.75 | $333.20 |

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Smooth mowing the easy way
PENNINGTON
RIDING MOWERS CUT
LAWN MAINTENANCE COSTS

**Pennington Extra Heavy-Duty "Super 60"**

- Smooth running 12.9 HP two cylinder Onan engine gives power to spare for toughest mowing jobs.
- Triple blade design—three 20" vacuum lift blades cut cleanly, smoothly—minimize windrowing.
- Extra large wheels and tires increase flotation and add to clearance of mower—mows rough, weedy areas with ease.
- Wide tread, low center of gravity and torque converter drive give amazing performance on steep hills and slopes.

*All Pennington mowers offer these features:*

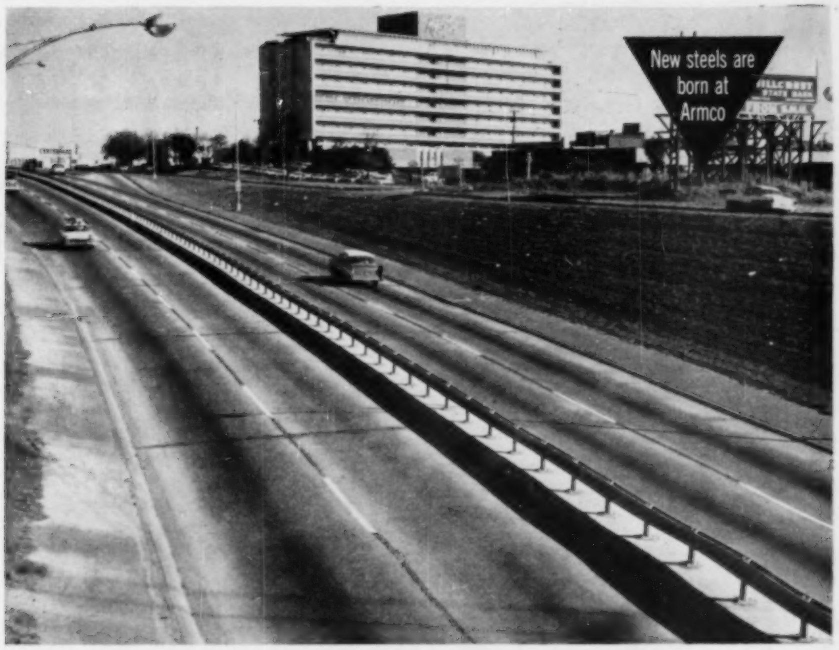
- Trim close to trees, buildings, etc. on either side.
- Ground speed independent to blade speed.
- Simple, easy-to-reach operating controls and comfortable seat reduce operator fatigue.
- Unmatched versatility. Attachments available include leaf and litter sweeper, outrigger mowers for terrace mowing, snow blade, leaf mulcher, pivot seat for slopes, etc.

Write for complete details. You'll get information, too, on the big 60" and compact 48" models powered with Heavy Duty Wisconsin engines.

PENNINGTON MANUFACTURING CO.
ADDISON, ILLINOIS

Strength
Durability
Economy

Steel



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Service-proved Armco FLEX-BEAM® Guardrail is designed for strength and safety with an eye to attractiveness. That's why more and more cities and towns are specifying it for protection of traffic on expressways. Deep-Beam Armco Guardrail reflects light from all angles—provides excellent visibility both day and night. FLEX-BEAM's shape and strength help guide vehicles parallel to the rail in case of impact.

Streamlined appearance and graceful curves help Armco Guardrail "dress-up" roads and highways. For more information about this rugged, good-looking rail, mail coupon.

**Armco Drainage & Metal Products, Inc.,** 5811 Curtis Street, Middletown, Ohio

☐ Send me information about Armco FLEX-BEAM Guardrail.

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CITY

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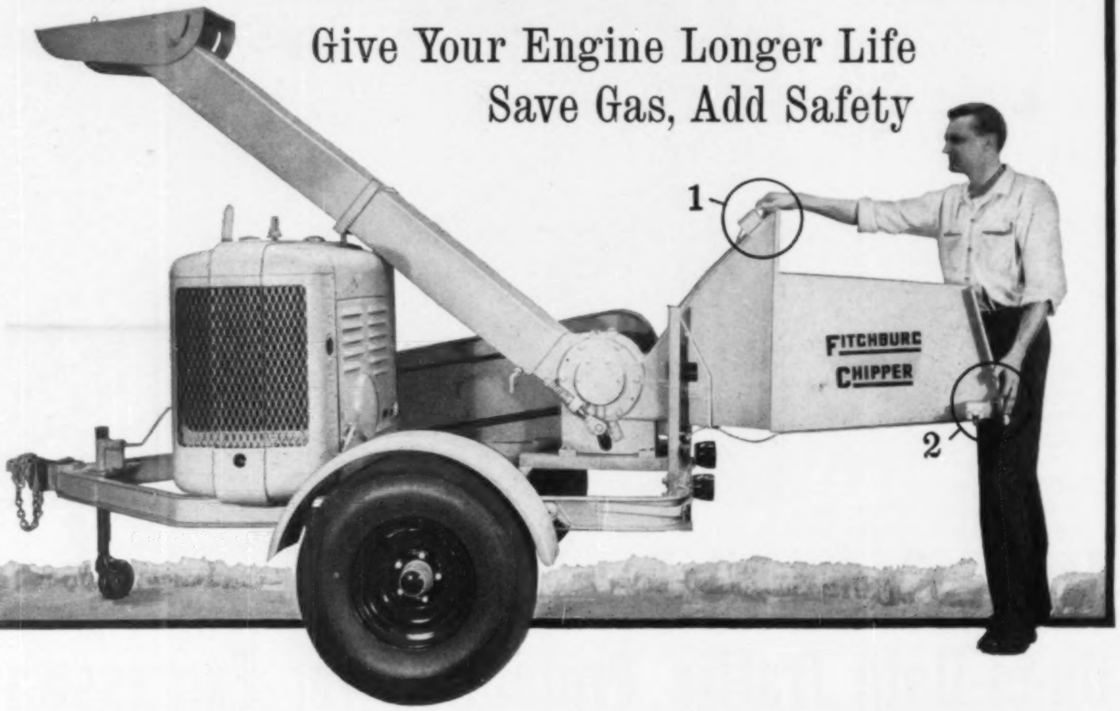
# 2 NEW FITCHBURG CHIPPER FEATURES

## Give Your Engine Longer Life
## Save Gas, Add Safety



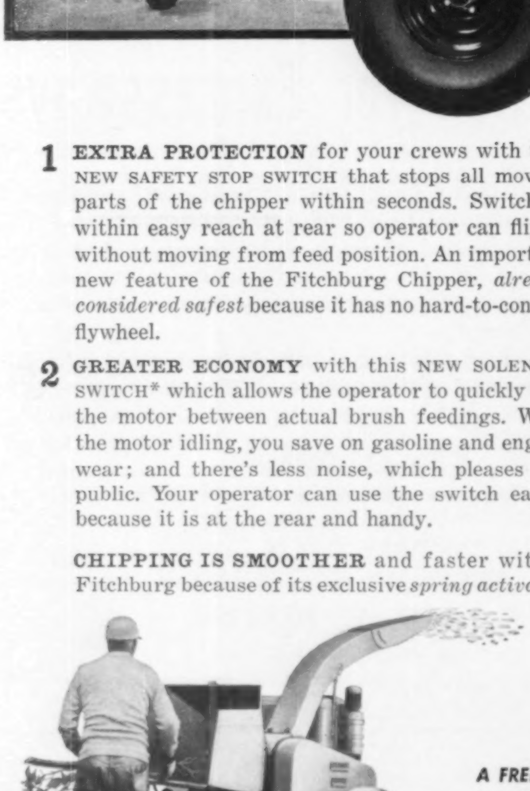
1 **EXTRA PROTECTION** for your crews with this NEW SAFETY STOP SWITCH that stops all moving parts of the chipper within seconds. Switch is within easy reach at rear so operator can flip it without moving from feed position. An important new feature of the Fitchburg Chipper, *already considered safest* because it has no hard-to-control flywheel.

2 **GREATER ECONOMY** with this NEW SOLENOID SWITCH* which allows the operator to quickly idle the motor between actual brush feedings. With the motor idling, you save on gasoline and engine wear; and there's less noise, which pleases the public. Your operator can use the switch easily because it is at the rear and handy.

**CHIPPING IS SMOOTHER** and faster with a Fitchburg because of its exclusive *spring activated feed plate.* This patented feed plate "gives" *automatically* under pressure. You can chip even large limbs (up to rated capacity) without killing the engine. And your crews are safer because the feeding action is more positive, smoother, with less whipping of the brush.

**CHIPPING IS MORE EFFICIENT** with a Fitchburg. The exclusive feed plate allows wood to be chewed up in small bites. This takes less power, and the engine can be run at lower r.p.m.—which is more efficient, saves you gas and cuts engine wear.

**TROUBLE-FREE** Fitchburg Chippers stay out of your shop so you don't lose valuable man-hours. These rugged machines are the choice of tree surgeons, line clearance contractors and others—men who depend on Chippers day after day to make money. Blades are made from special alloy steel to hold a keen edge for a long time, even with hard use. Fitchburg Chippers are well-engineered, come in four sizes to meet your needs: the largest handle limbs as thick as seven inches with ease.



***A FREE BOOK*** "Chip Dollars" should be in your hands if you deal with brush disposal. 20-pages. Write for free copy—Dept. AC-14.

*optional equipment

**FITCHBURG ENGINEERING CORPORATION** FITCHBURG, MASS.

# The City Tells Its Story

Edited by PAN DODD EIMON

**Municipal**
**Public**
**Relations**

---

Beverly Hills' citizens cheer sound-and-color report

## Filmstrip Sells City Service; Was Produced for Under $1,200

The music is Bali Ha'i. The title is "Your Special Island." The pictures change from a home in a tropical setting to the city hall. The narrator's voice moves smoothly, "This is the story of an island . . . an island of comfortable living completely surrounded by a great metropolitan complex. The heart of this island is the seat of its government. The purpose of this film is to take you behind the scenes and show you the unseen activities contributing to the high level of public services provided the citizens of Beverly Hills at one of the lowest tax rates in California."

There's glamor aplenty throughout the 28 minutes of Beverly Hills' narrated, full-color filmstrip. For all its glamor, the program packs so much city government "wallop" that the 1,500 citizens and several hundred city employees who have seen it to date watch the last frame (#157) and then say this or an equivalent, "We didn't even *dream* the city did all that!"

### Low-Budget Production

Film technicians estimate that the production should have cost from $3,000 to $5,000. Beverly Hills did it for $1,200—on their own. The sleight of hand has three elements: 1) Administrative Officer John B. Wentz, 2) Assistant Administrative Officer Harvey L. Hurlburt, and 3) a professional film-maker, Bill Deming, who volunteered his help in exchange for a credit in the strip.

City officials Wentz and Hurlburt "created" the program — they had the idea, worked out a script, made lists of potential shots. Mr. Hurlburt was the photographer.

Professional Deming got wind of the city's plan, offered to help for credit to boost his firm, "Pictures for Business." Administrator Hurlburt points out that his help meant much: obtaining free rights for use of the background music; a technician for art work used in the strip; a considerable professional discount on materials and services; and a well-known narrator, Norman Nesbitt, without fee.

Even if a city hasn't a professional producer who shows up at the right time to volunteer his services, the Beverly Hills officials think a city would do best to contract with a professional to make a filmstrip. A feature of the Beverly Hills production is its professional "finish." This gives story-telling impact and high audience appeal. Both are valuable to the city.

At first, Beverly Hills simply looked for some visual way to describe its function, operation, and "heart" to the citizens. Between $700 and $800 was budgeted for the work. The administrative staff decided on slides because they aren't too difficult to take, are inexpensive and clear, and produce sharply. The staff decided to put the slides in "strip" form because of the ease of use and the professional appearance of the filmstrip.

The city got its work underway by surveying cities over the country for how-to-do-it information, cost, tips. Then the administrative staff developed a list of pictures and started taking them. Next a script was written. The project was a continuing one over a period of ten months.

Official Hurlburt thinks the city could have shaved costs a couple of hundred dollars and countless man hours had the film makers known

*(Continued on page 142)*

***At a showing of the Beverly Hills filmstrip, Administrative Officer John B. Wentz, (right) checks details with his assistants, Mason L. Ashla (left) and Harvey L. Hurlburt (center).***

*(Continued from page 141)*

some things beforehand that they learned by doing. He passes this time- and dollar-saving advice on to other cities:

- **Start with a key theme idea and message.**
- **Write the script first, around certain key pictures.**
- **Allow just 6-9 seconds per frame and keep the total production time 20-25 minutes.**
- **Plan on taking the pictures over a one-year period to avoid costly, time-consuming setups for the right sky, foliage, etc.**
- **Check equipment first; be sure the camera and light meter are in perfect shape before use.**
- **Limit the number of photographers taking the pictures; one is probably best. (Reason: even the most amateur photographer has a "style" and many different styles make a spotty production.)**
- **About subjects: get in plenty of people and action, use aerial shots where possible.**
- **Be sure you have plenty of lighting equipment (maybe you can borrow it from a local press buddy).**
- **For charts and illustrations: the drawing must be in strong contrast, heavy lined.**
- **Use a single type of film.**
- **About the picture taking: keep pictures slightly on the "light" side, provide for loss on the edges, allow three settings for each shot.**
- **Make at least two sets of film and tape, besides the master.**
- **Buy a good 1000-watt projector to show the film strip.**

Beverly Hills hopes to get long use out of the strip. It so organized the presentation (and so limited photographs and mention of items and people that would date the pictures), that officials believe the filmstrip can be used, as is, for several years. Then, with minor editing, it can be brought up to date for "about $100."

Once the film was finished, letters went out to the heads of groups, committees, associations, clubs, and to the schools. The first showing of "Your Special Island" was to an invited group of 50 leaders at a city-sponsored luncheon. This group was told how the organizations they represented, or were members of, might use the filmstrip. Reaction to the program has been universally enthusiastic. The booking business has been brisk.

Here's the city's cost breakdown:

| | |
|---|---|
| **Film production** | |
| **material and equipment** | **$ 285** |
| **developing, processing, lab** | **810** |
| | **$1,095** |
| **Taped narration** | |
| **material** | **$ 10** |
| **narrating expenses** | **30** |
| **editing** | **20** |
| | **60** |
| | **$1,155** |

Beverly Hills' 1,000-watt projector cost $205, an extra narration tape, $5 and an extra film strip, $5.

## Narration Fits Slides

The slides flow smoothly from one sequence to another, bridged by the narration. This is the script and photo description on slides, #15 through #22 which introduce the city government organization.

**Cartoon of character peering behind City Hall**

"The purpose of this film is to take you behind the scenes and show

*(Continued on page 145)*

RADIO COMMUNICATIONS
for MORE vehicles—MORE departments
with the NEWEST equipment
at the LOWEST cost
DU MONT

Now, equip more vehicles—more base stations with two-way radio. Extend your network of communications for more efficient, faster services... AND DO IT WITHOUT SPENDING MORE MONEY!

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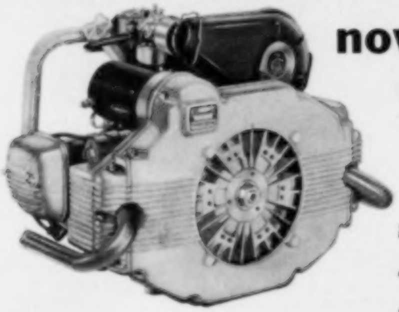
MUNICIPAL GARAGE
26

# CUSHMAN TRUCKSTERS®



## now with new, more powerful, die-cast aluminum engines!

Cost-cutting Truckster now deliver more live power, more efficiency, more versatility and utility with either of Cushman's great new, advanced, die-cast aluminum engines:

- **The Twin Super Husky; two cylinders, rated at 18 HP.**
- **The Super Husky; one cylinder, rated at 9 HP.**

Cushman Truckster also now offer many other new advances — such as an extra-heavy duty clutch, synchro-mesh transmission, and auxiliary transmission* — to go along with these proven advantages . . . "all-muscle" chassis and body with 800 pound payload rating . . . greatest economy resulting from low initial investment, minimum operating and maintenance costs . . . general utility indoors or out, on or off street.

**Auxiliary Transmission optional; increases drawbar pull; eliminates strain of repeated starts and stops; produces smooth cruise at low speed. All-weather cab also optional.*

### ACTUAL TRUCKSTER COST ANALYSIS NOW AVAILABLE

A coast to coast survey of typical Truckster users not only proves greatest economy, but reveals the wide range of uses to which the Truckster is being put.

Municipal uses ranged from mosquito control to park, cemetery and golf course maintenance . . . from trash collection to police and utility department service. Operating costs reported by municipal users ran as low as 0.66 cent a mile, and averaged 1.17 cents a mile.

Survey results have been compiled in condensed form and are available upon request.

**Ask your dealer for a demonstration or write for FREE Cost Analysis Report and descriptive literature**

**CUSHMAN MOTORS** *1022 No. 21st, Lincoln, Nebraska*
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**Please send Cost Analysis Report and descriptive literature.**

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. . . this sturdy chain link fence will give *your* property a lifetime of reliable protection. Made from top grade steel wire, Realock Fence is strong and durable, neat and trim looking. It's recommended where security of buildings, grounds and equipment is essential.

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*(Continued from page 142)*

you the unseen activities contributing to the high level of public services provided the citizens of Beverly Hills at one of the lowest tax rates in California."

**Picture of city council in session**

"On the shoulders of the City Council rests the prime responsibility of guiding the destiny of Beverly Hills. The electorate has consistently selected councilmen of the highest integrity and ability to represent them and direct their city's policies."

**Mayor (identified) at his desk with visitor (unidentified)**

"Distinguished visitors often come to study the government of Beverly Hills. They learn that there are two basic reasons for its effectiveness and outstanding reputation in the field of municipal management."

**Cartoon, a finger pointing to the words "citizen participation"**

"Its citizens ensure their better living by an unusual amount of active, voluntary participation in their government."

**Chart of Beverly Hills' elected, appointed, volunteer, and other non-paid groups**

"The lack of public apathy at the polls and the great number of extremely qualified citizens and business people who unselfishly devote their time and efforts toward an ever greater Beverly Hills is a phenomenon found in few cities."

**City organization chart**

"Second, and of equal significance, is the fact that the Council has staffed the municipal organization with highly-trained and competent employees, directed by skilled professional specialists at the head of the various departments . . . "

**Department heads and administrative officer in meeting**

" . . . and provided general administrative direction and coordination by a professional Administrative Officer. This organization works with a single purpose—community services. Each member has been supplied with the facilities to provide a level of public service usually unknown . . . "

**Man dropping a letter in mail box**

" . . . to a citizenry which pays its taxes and concludes its civic participation at the mail box." ◄◄

For further details on the Beverly Hills Filmstrip, write directly to: Administrative Officer John Wentz, City Hall, Beverly Hills, California.

**LET THE PUBLIC *keep your* STREETS and PARKS CLEAN . . .**

USE NORWICH STREET AND PARK BASKETS

34" Deep
22" Top

18" Bottom
Approx.
wt. 43 lbs.

6" x 16"
Blank
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Traffic Tested and approved, with installations throughout United States and Canada. A special compounded rubber designed to withstand all weather conditions and high speed impact of Autos . . . even to 70 m.p.h.

**LOW COST — INSTALL IN MINUTES**

Exclusive snap-in and snap-out features of models 200 and 300 puts them to work full or part time. Guides are furnished with reflective yellow bands.

Model 400 Roll-effect flange-designed for quick change with standard tool.

For Details and prices write:
**FLEXIBLE SAFETY ZONING CO., INC.**
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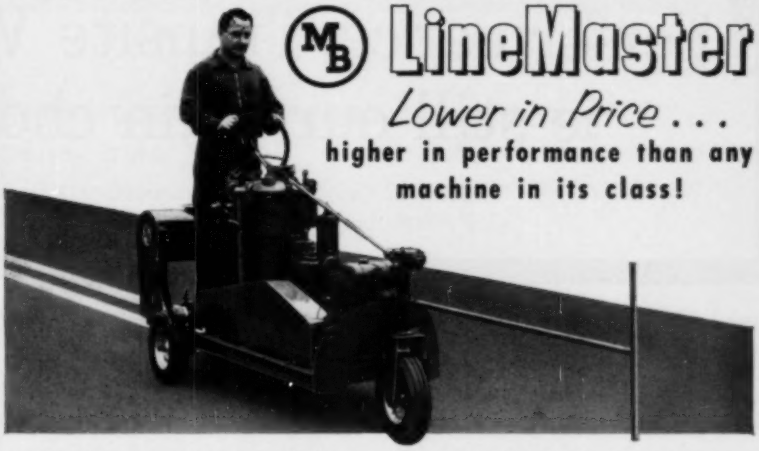
*Lower in Price . . .*

**higher in performance than any machine in its class!**



- Rapid single or double-line marking, 1 color, 3" to 6" widths, regular or reflective, solid or intermittent.
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- Automotive-type steering and Shift-o-matic drive for effortless operation.
- Big 18 gallon paint tank and heavy-duty jet spray cups for sharp, clean stripes.
- Built-in riding platform affords operator unmatched visibility.

Write today for information on the complete M-B line of markers with paint capacities from 10 to 750 gallons. M-B Corp., New Holstein, Wisc., Dept. AC

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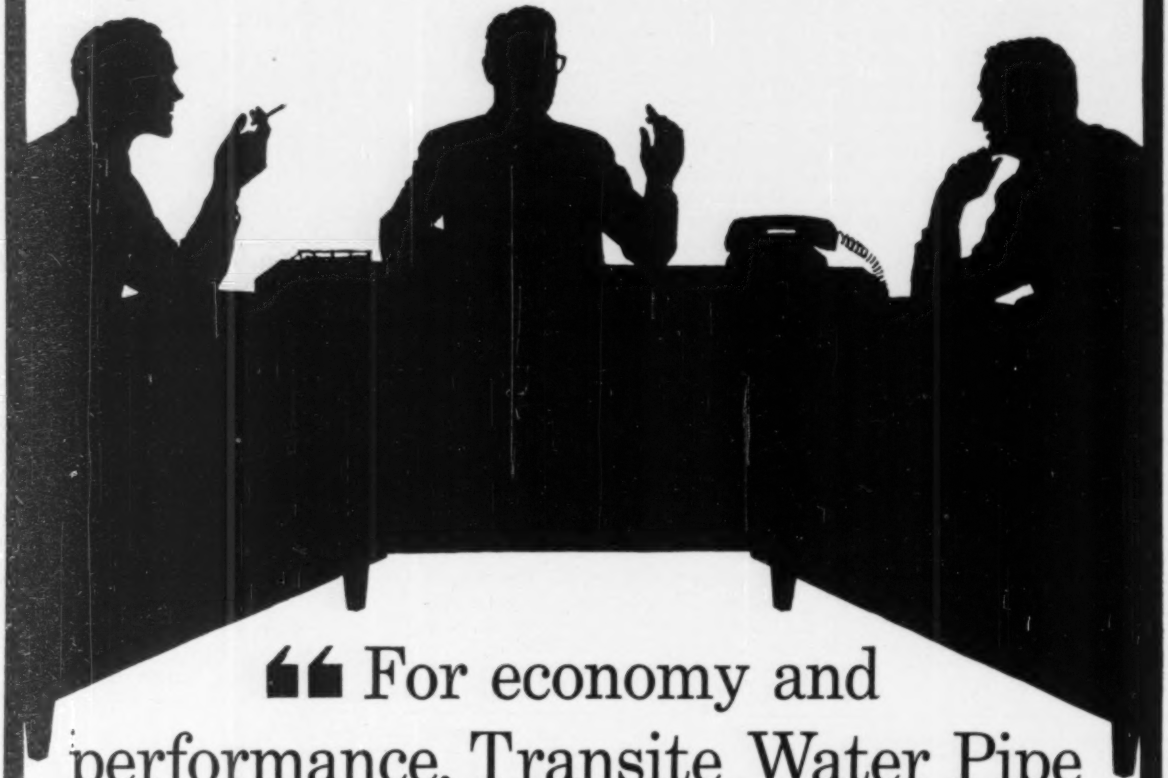
**LINE MARKERS • PACKER BODIES SWEEPERS**

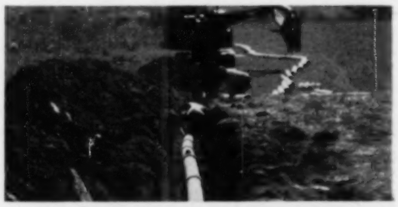
**QUALITY MUNICIPAL AND INDUSTRIAL EQUIPMENT SINCE 1905**

## Three County Commissioners from Ohio report:



# "For economy and performance, Transite Water Pipe is still our main choice."

*Belmont County, Ohio, Commissioners William H. Dorsey, Austin C. Furbee and Louis T. Salvador.*



"Belmont was one of the many counties that experienced a building and population boom. Fortunately, our officials had the foresight to recognize its ultimate effect on our water system and service. As early as 1953, plans were made to meet future demands. Surveys were made . . . operating men and engineers were consulted . . . pipe materials investigated.

"In 1956, we extended our water system 13 miles. The installation and operating economies are now a matter of record. The successful performance of the extension is attributed to careful planning, helpful advice and, in part, to the selection of Transite Pipe.

"When we began designing another expansion of the system for 1960, our previous experience made Transite the main choice. The Belmont Water System now has 53 miles of Transite installed in rocky terrain and corrosive soils. The excellent performance of the first 13-mile section leads us to believe that Transite will provide economical maintenance and operation for many years."

For the full Transite® story, write Johns-Manville, Box 14, AC-4, New York 16, N. Y. In Canada: Port Credit, Ontario. Cable address: Johnmanvil.

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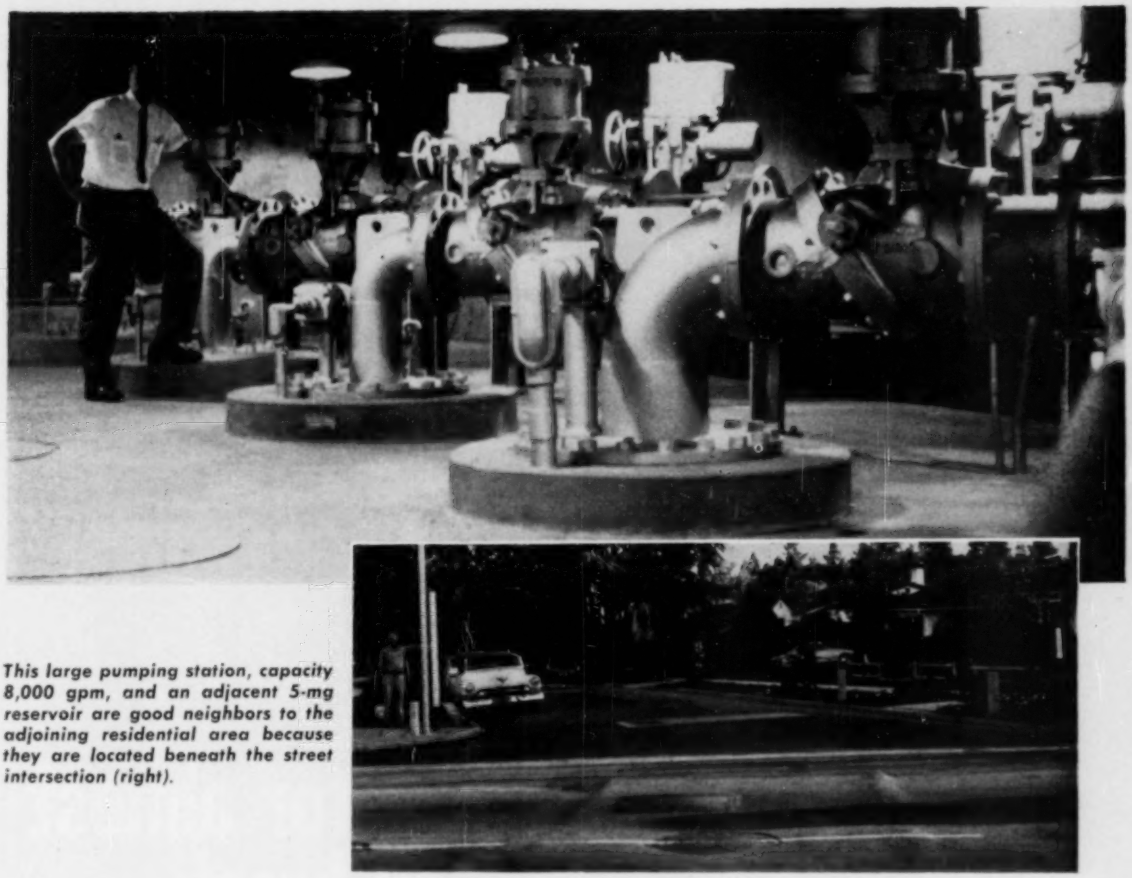
**TRANSITE PIPE**
THE WHITE PIPE THAT PROTECTS PRICELESS WATER



*This large pumping station, capacity 8,000 gpm, and an adjacent 5-mg reservoir are good neighbors to the adjoining residential area because they are located beneath the street intersection (right).*

Santa Monica, Calif., moves ahead with a water-improvement program based on the theory that . . .

# The Future Must Rule A Water-Supply Program

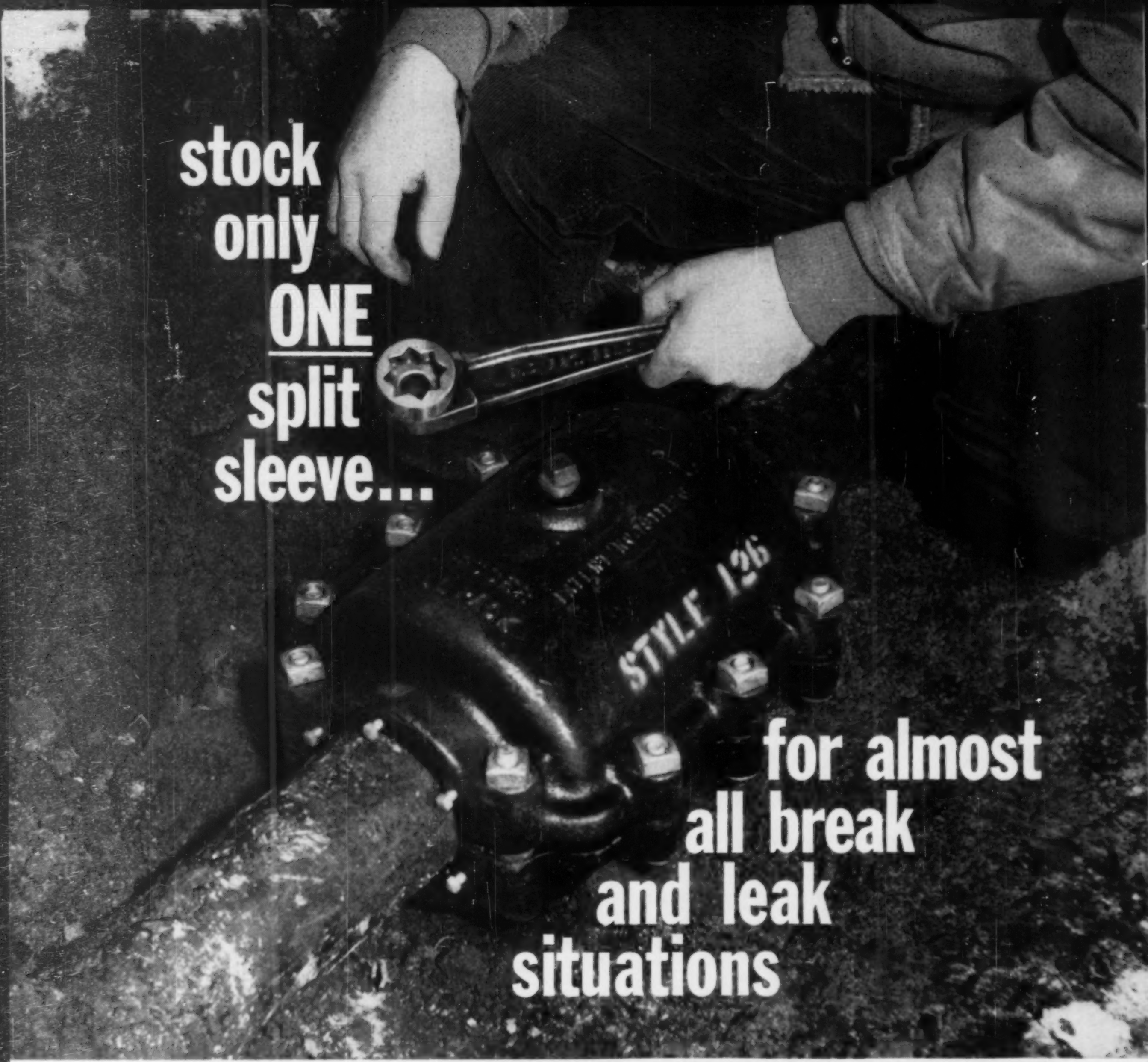
By **JOHN R. PATTEN**
Water Superintendent

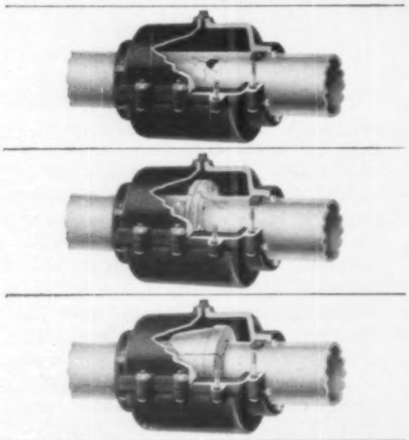
Designing and building to meet future needs seems elementary to practically everyone, especially in the all-important field of water supply. Yet statistics show that too few do anything about the matter; or most of our cities would not be in the predicament in which they find themselves today. Some may argue that the trouble lies with municipal administrative officials or utility boards and the general public because of its apathy; nevertheless, in the end, the water superintendent or manager has the responsibility to analyze his system, prepare recommendations and a program for improvement of his water system, within sound economic principles, to educate and sell the program to responsible officials and the public and then to get the job done by sound managerial and the best engineering principles.

Santa Monica's water history is typical. An 1889 tourist's guide reported that the city had a population of 1,500 but a superior water supply sufficient to serve 50,000. Yet water shortages lasted until the late 1940's.

The city did make progress but only on a sporadic basis and never with too much consideration of future needs. In 1917, the city purchased four separate water companies in the area. Seven years later the citizens approved a million-dollar bond issue to strengthen the distribution system and construct 7,500,000 gallons of storage capacity. By 1927, Santa Monica, along with 12 other communities, realized that a new source was needed and formed the Metropolitan Water District. This resulted in the completion in 1941 of a 569-mile aqueduct

*(Continued on page 149)*


stock only ONE split sleeve...
for almost all break and leak situations
STYLE 126



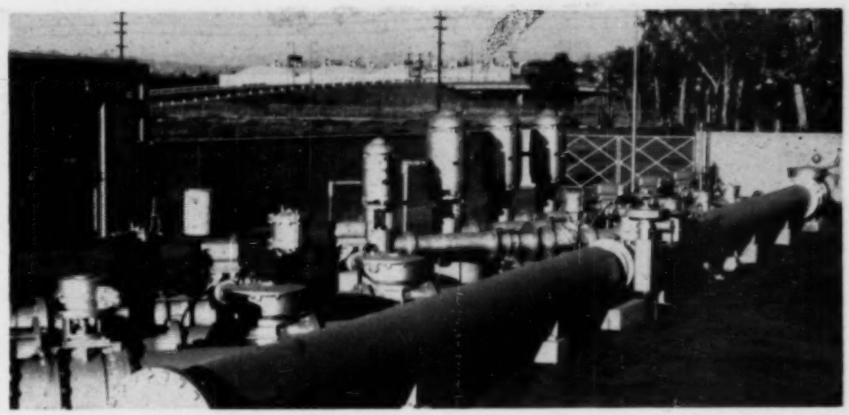
Style 126 completely encloses broken or leaking joints . . . tightens up permanently in a matter of minutes . . . without taking line out of service. Fully described and illustrated in Bulletin 1052. **SEE YOUR NEARBY DRESSER DISTRIBUTOR FOR THE FULL STORY.**

Dresser Style 126 BELL-PACK® Repair Sleeves take on a variety of breaks and leaks in cast iron pipe. Stock only ONE for each pipe size. They make split bells and broken mechanical joints leakproof in a matter of minutes. These easy-to-put-in sleeves will pay for themselves when you can't take a line out of service—one of those breaks in the middle of Main Street, 4:00 AM on a windy, sleeting morning! No more makeshift repairs, shutdowns and involved operations with cumbersome gear. Style 126 repairs are fast, economical and permanent. They pack tight on deflected or offset pipe... and there's no cutting or trimming of gaskets. There's a complete size range—3″ through 24″. Standard sizes fit AWWA CIP through class D; AGA; Super DeLavaud; Standardized Mechanical Joints; mechanical couplings; flanged joints and Universal joints through 8″.

**dmd**
**DRESSER**
**MANUFACTURING DIVISION**
**BRADFORD, PENNSYLVANIA**

DRESSER
INDUSTRIES,
INC.

OIL ▪ GAS
CHEMICAL
ELECTRONIC
INDUSTRIAL



***This booster station is located outside the city limits. The electrically controlled valve halfway down the discharge line controls M. W. D. water.***

*(Continued from page 147)*

to bring Colorado River water into the area.

Studies made in 1948 showed no large-scale construction on existing trunk mains, pumping stations and reservoirs. The city started a program to modernize the entire system by passing a bond issue to construct two 5,000,000-gallon reservoirs. But this addition did no more than meet minimum requirements. The big push came in 1955 when the city asked the author to prepare a program designed to meet potential future requirements—not just present needs.

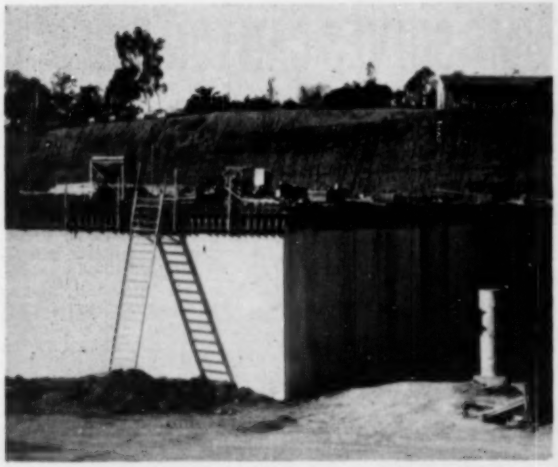
Our studies included population estimates to the year 2000; a liberal figure of 155 gallons per capita per day, average daily use, and consideration of the National Board of Fire Underwriters grading schedules. A resolution of the Metropolitan Water District (M.W.D.) limited all members to a maximum flow of 130% of the average demand with a variation in flow limit during any 12-hour period of two cubic feet per second. Since the National Board of Fire Underwriters considered the M.W.D. transmission line a major source with the determination that the line could normally be repaired within three days, we decided that storage capacity requirements would be three days of maximum demand plus fire protection. The studies indicated our need for more storage plus modernization and enlargement of our pumping stations.

## Land Problem

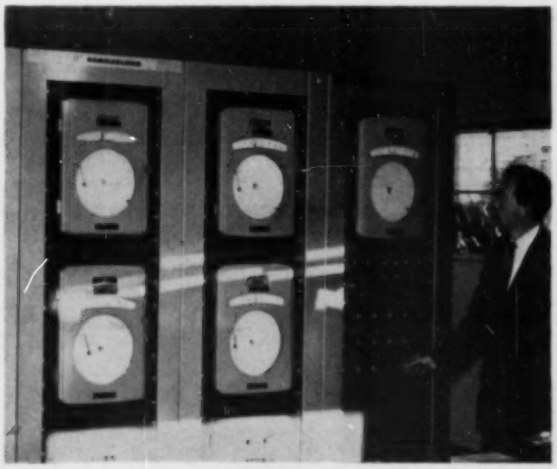
The decision to construct more storage capacity created a land problem. The storage had to be built at elevation 350 feet above sea level and it was desirable to obtain an eight-acre site for a 25,000,000-gallon reservoir, to be built immediately, and a 20,000,000-gallon reservoir, planned for 1975. After much searching and study we found a five-acre site for the first on a privately owned golf course, within the adjacent city of Los Angeles. By June 1958 we were ready to present a $3,000,000 program to the people to construct the reservoir, water transmission pipe-lines and pumping stations. A water depreciation fund established in 1956 provided us with $300,000, but a $2,700,000 bond issue was needed to finance the work This our citizens approved by a 4:1 majority.

Negotiations between Santa Monica and the golf course owner took over a year and a half and the outcome resulted in our buying the property as an easement, with the golf course having the right to use the reservoir roof for automobile parking and recreational facilities.

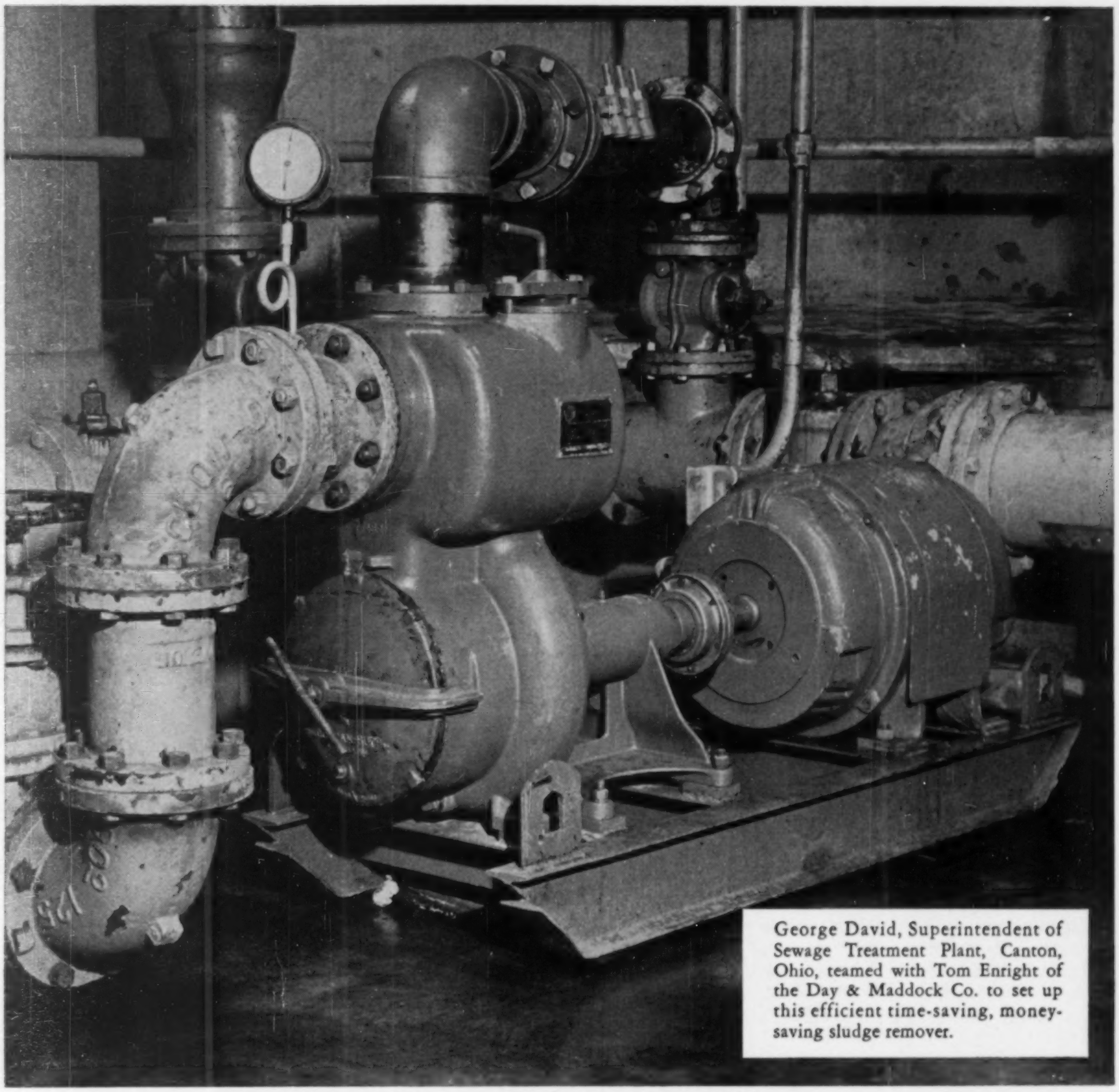
*(Continued on page 151)*



***When completed the reservoir's roof will be used to provide parking and recreational facilities.***



***Mr. Patten looks over part of the telemetering and instrumentation system that controls the Santa Monica water supply.***



George David, Superintendent of Sewage Treatment Plant, Canton, Ohio, teamed with Tom Enright of the Day & Maddock Co. to set up this efficient time-saving, money-saving sludge remover.

# RECIRCULATION AND CLEANING PUMP SOLVES CANTON DIGESTER PROBLEM Gorman-Rupp Sewage Pump cleans with no downtime and major savings

*Problem*—To remove 7-years' accumulation of sludge from 10 huge digesters. With mechanical shoveling devices, it cost $5000 to clean only one digester. And during cleaning, digester was totally inoperative for 6 weeks.

*Answer*—A Gorman-Rupp Model 16A2-B Pump. Its unique action first agitates sludge into a common mixture by circulating digester liquid under pressure. Then, with valves reversed, pump draws off liquid and suspended solids for disposal.

*Result*—Each digester could be cleaned in only 21 days. Only outlay is cost of 6″ pump, electric motor, and labor of opening and closing 2 valves twice a day.

4″ and 6″ pumps can be connected to your power or ordered complete with power units. Write for complete specifications.

*Fast-Action End Plate.* Releases for access to impeller and renewable wear plate. Impeller is 2-vane trash type that handles spherical solids up to 2½″ in diameter.

**THE GORMAN-RUPP COMPANY**
305 Bowman Street • Mansfield, Ohio
GORMAN-RUPP OF CANADA, LTD.
St. Thomas, Ontario

*(Continued from page 149)*

Zoning variation rights took another nine months, during which appeasement and meetings with the people of the adjacent residential area became standard practice. Construction finally started in February 1960 and will be completed this June.

The limited area required excavation to a depth greater than normal. To avoid excessively high walls, our consulting engineer, James M. Montgomery, established an economic balance by using 26-foot-high walls and a 5:1 slope on the floor to provide a water depth at the toe of the slope of 38 feet at the water-effluent line.

The water depth plus soil conditions required the use of a 12-inch mat-type floor. A concrete stairway from the bottom to the roof provides easy entrance and exit during maintenance. We will use 40% of the roof area to park about 100 cars and the balance probably for tennis courts. A bridge ramp will connect this new area with the existing parking space, which is about 30 feet higher. The contract price for the reservoir is $998,000, about 4 cents a gallon. The table (right) lists quantities of the principal materials.

We doubled the pumping capacity of the stations, constructed in 1924, and built three new ones, two of which are located outside the city. The most outstanding facility is the new San Vincente pumping station supplying the 500-foot pressure zone. As far as we know, it is the largest underground closed pumping station in the United States, serving 16% of the area of the city. It is located under a street adjacent to the 5,000,000-gallon reservoir on the 350-foot pressure zone, which is also under a street and serves as a water source for the pumps.

Built at a cost of $300,000, it contains six Layne & Bowler Pump Co. submersible pumps ranging from 15 hp to 150 hp, governed by a Venturi control, relays, pressure switches, standby diesel engine, two standby gasoline engines located at a different site, two pressure relief valves, and telemetering equipment feeding information to the main pump-control station. With this equipment the station operates automatically by remote control.

One of the most critical design and final checkout problems of the station was to allow M.W.D. water to feed the system when its pressure was high enough, without fluctuating flow from M.W.D., and still have the pumps come on automatically when M.W.D. pressure was down.

*(Continued on page 153)*

**QUANTITIES OF PRINCIPAL MATERIALS**
**25-mg Reservoir**

| | |
|---|---|
| Structural concrete | 11,700 cubic yards |
| Reinforcing steel | 2,346,000 pounds |
| Excavation and compacted fill | 97,000 cubic yards |
| Polyvinyl chloride water stops | 22,200 lineal feet |
| Rubber sealant | 9,000 lineal feet |
| 3-inch thick asphalt concrete pavement | 60,000 square feet |
| Storm drains (48", 42" and 39") | 1,230 lineal feet |
| 36-inch steel cylinder pipe | 1,000 lineal feet |
| 12-inch drain line | 700 lineal feet |
| 4-inch underdrain | 4,500 lineal feet |

M.H.V & F.CO.
ANNISTON, ALA.

The Story of Water

Our Pilgrim forefathers and their American Indian neighbors conveyed water in buckets or stone jars from springs or creeks. As the population increased, industries were started. Villages became towns, towns became cities, small shops became great manufacturing plants. One of the basic things that made this possible was water.

For domestic use and for industrial use, over 17,000 water distribution systems have been built – dams, reservoirs, filtration plants, sewage systems. Instead of the Pilgrim's bucket and the Indian's stone jar, now we simply open a valve! Our modern cities could not exist, our vaunted American manufacturing industries could not operate without the valves which control their water supply and the fire hydrants which protect them from fire.

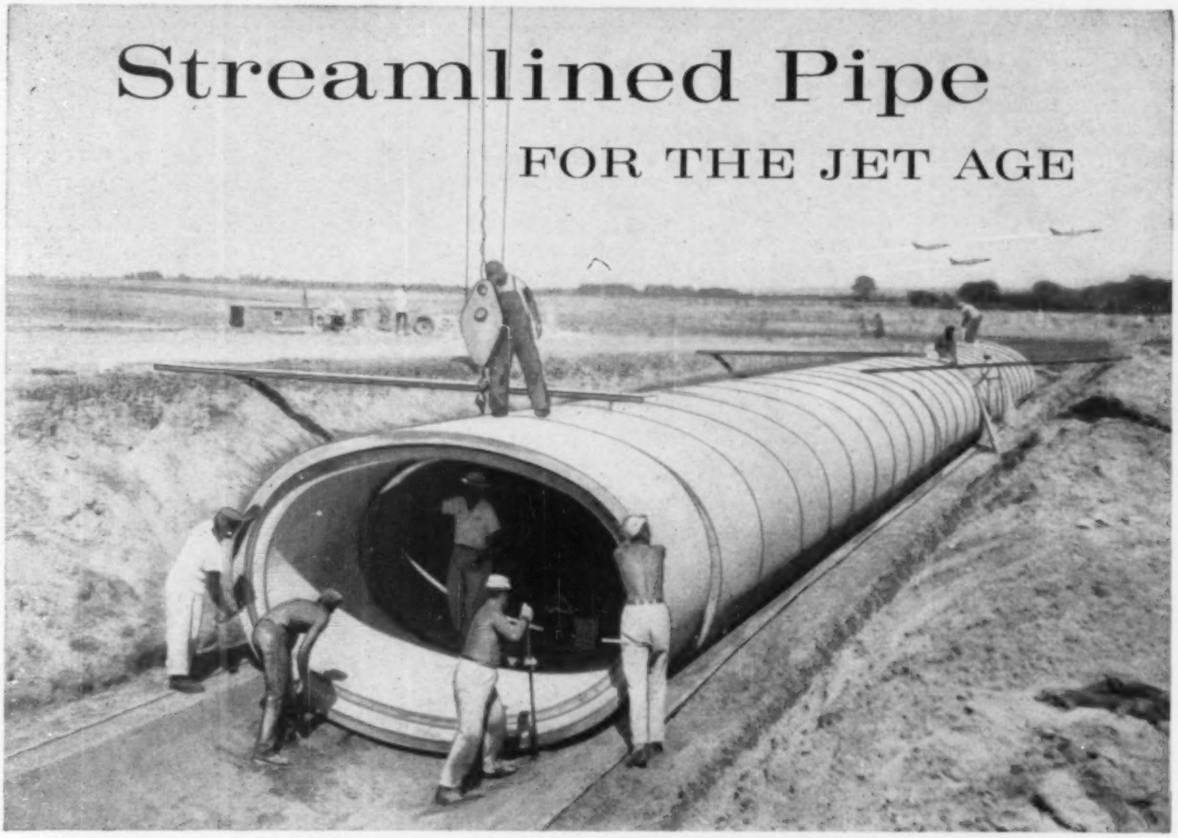
At M & H, we like to think that we have played an important part in the American Story of Water. For 34 years we have been making high quality, rugged and efficient valves and hydrants. Thousands of them are in service today in every State in the Union and in many foreign countries.

(No. 11 of a series)

M&H VALVE
AND FITTINGS COMPANY
ANNISTON, ALABAMA
SUBSIDIARY OF W WALWORTH

# Streamlined Pipe

## FOR THE JET AGE



108 inch Lo-Hed being installed at Offutt Air Base, Nebraska, jet headquarters for the U.S. Strategic Air Command.

# LO-HED®

## REINFORCED CONCRETE PIPE

Jet airfields require special drainage pipe with features only Lo-Hed can provide. The elliptical shape permits a minimum depth of cover on minimum slopes under vast jet airfields. Also, Lo-Hed will not deflect even under tremendous loads . . . has a smooth, non-inflammable interior . . . assures greater capacity than equivalent size of round pipe.

*Write today for illustrated Lo-Hed folder*

A-M

**AMERICAN-MARIETTA COMPANY**

**CONCRETE PRODUCTS DIVISION**

GENERAL OFFICES:
AMERICAN-MARIETTA BUILDING
101 EAST ONTARIO STREET, CHICAGO 11, ILLINOIS, PHONE: WHITEHALL 4-5600

*(Continued from page 151)*

Trying to measure or control the changeover under small-flow conditions and getting a Venturi to measure which way the water was going under this condition posed the major problem. Even with careful advance engineering the author spent many hours working on the problem before it would work as expected.

We have operated it for more than two years and have seen it successfully meet the test of providing water under the most severe conditions. The system requires a pumping rate varying from less than 100 gpm to an immediate load of 8,000 gpm.

The new Arcadia Pumping Station, located outside the city limits, serves as our control headquarters. From here Water Division personnel can operate and control water flow from M.W.D. at varying pressures, seven well pumps, 17 water booster pumps, chlorinators, settling basins, reservoirs, pressure relief valves, water transmission mains and mix well-water and M.W.D. water for controlling hardness throughout the entire system. All necessary data is brought to the control headquarters by means of one Hammarlund tone-control telemetering system and one pulse-width system. There are now only three pulse-width telemetering systems in operation in California.

Central control has reduced travel by pumpmen considerably, permits us to operate with three pumpmen where formerly we needed five, and still provides a more reliable system. However, the station requires more technical maintenance, as well as more capable pumpmen than it did before. Nevertheless, the savings will pay for two houses built for pumpmen and for the telemetering equipment in about 4½ years.

Upon the completion of the pump stations the city adopted the policy of pumping as much well water as possible without exceeding the safe yield of the aquifer, using M.W.D. water to make up the balance of the daily demand. This will save us about $44,000 annually. While the hardness of the water will be higher, it is our experience that consumers will accept harder water if it does not exceed 240 ppm hardness.

At present, our Water Division employs 46 persons to serve a population of 84,000 people. Division responsibility includes maintenance, production, billing, collections, engineering, administration and construction of approximately two miles per year of distribution mains 12-inches or under in size.

One reason that we can operate with such a small number of employees is the progressive attitude of management in allowing the various city departments to purchase good, reliable labor-saving equipment. In 1953, when unaccounted-for water reached 10%, we started a water-meter repair and replacement program. This resulted in reducing unaccounted-for water to only 3% and adding about $90,000 to our gross yearly revenue (The American City, November 1955, page 101). In 1954 we started a water-chlorination program to kill the iron bacteria in the system. Today, by flushing, a thorough chlorination program, and the cooperation of the water users, we can maintain 0.35 ppm free available chlorine in the distribution system.

With this progressive backing on the part of the city administration, establishment of a water depreciation fund for future capital outlay and replacement, and the desire to have one of the state's best water systems, Santa Monica can keep ahead of the water supply game, not just catch up or hold its own. ◄◄

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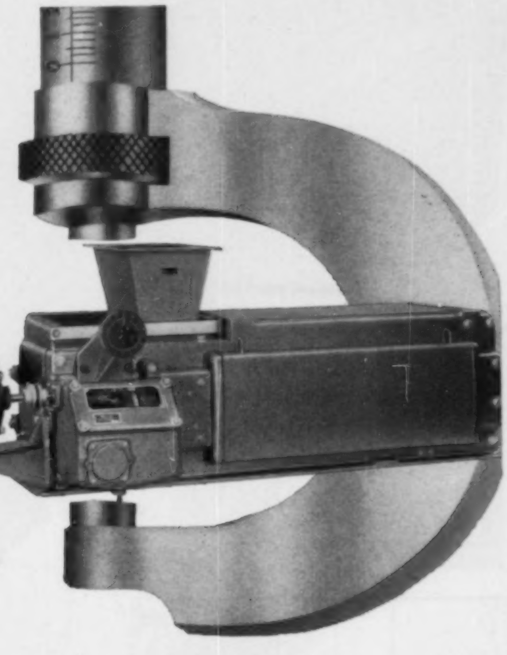


**NOW,**
**a**
**Volumetric**
**Feeder**

**with**
**close to**
**gravimetric**
**accuracy**

**The New Merchen Volumetric**

Now you can feed 3 to 3,000 lbs. of dry materials per minute with clockwork accuracy. The simple belt-and-gate design of the new Merchen Volumetric assures constant, uniform delivery. You get feed rates held within ±3% over any one-minute period.

The Merchen Volumetric has 9" or 18" belts . . . handles 0.1 to 2660 cu. ft. per hour. Feed rate is adjustable over 10:1 range. Simple gear changes increase capacity. Special gears can increase range to 1000:1.

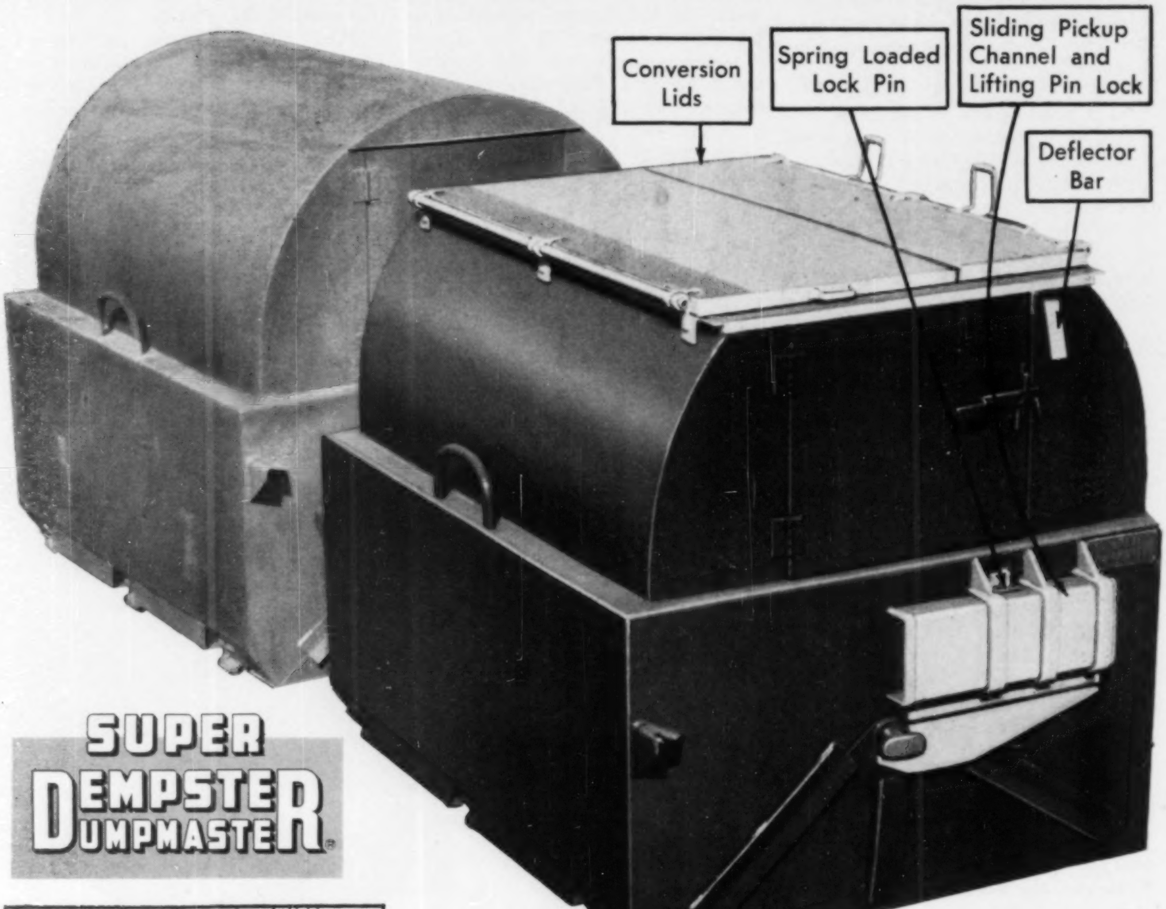
Both sizes feed powdered or granular materials without a hitch. Lumpy materials reduce ranges only slightly.

Either Merchen Volumetric can be converted to a gravimetric feeder by adding weighing components. An optional off-feed switch stops the feeder or actuates an alarm when feed falls below a selected rate.

*For more information write Dept. M-54.00.*

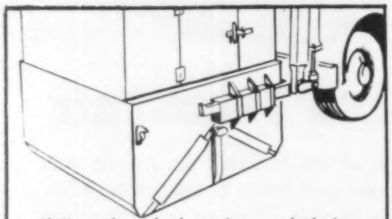
**WALLACE & TIERNAN INC.**
**25 MAIN STREET, BELLEVILLE 9, NEW JERSEY**

# Converted DUMPSTER Containers

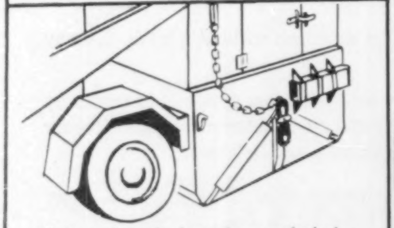

Conversion Lids
Spring Loaded Lock Pin
Sliding Pickup Channel and Lifting Pin Lock
Deflector Bar

**SUPER DEMPSTER DUMPMASTER®**

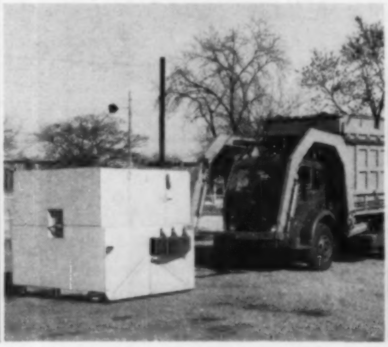
Your old DEMPSTER-DUMPSTER containers may now be converted for SUPER DUMPMASTER service with low-cost conversion kits and plans from the factory. Two types are available: (1) For permanent SUPER DUMPMASTER service; (2) For combination service by both the SUPER DUMPMASTER and your present truck-mounted DEMPSTER-DUMPSTER equipment.



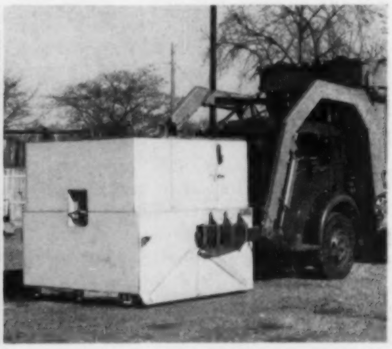
Sliding channels have been unlocked, moved back and relocked with the spring loaded pins. Container is now ready for service by the SUPER DUMPMASTER.



Sliding channels have been unlocked, moved forward and locked. Container is now ready for service by DEMPSTER-DUMPSTER LFW, GRD, ARLF or DTLF.



The SUPER DUMPMASTER approaches 12 cu. yd. Universal Container.



Lifting forks engage Container's side channels.

# For "No Container Haul" Service

## NEW SUPER DUMPMASTER HANDLES CONVERTED DUMPSTER CONTAINERS–BEATS LONG-HAUL PROBLEMS

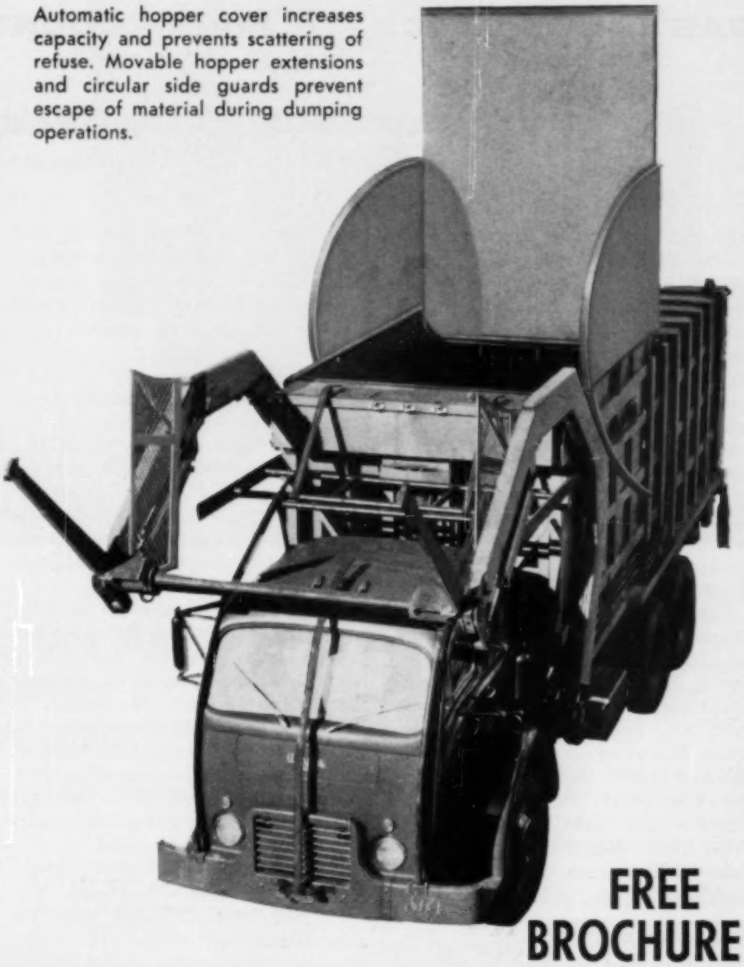
Owners of DEMPSTER-DUMPSTER Systems who now face long haul problems due to movement of disposal areas may now convert from their present "container haul" system to the new SUPER DUMPMASTER "no-container-haul" system without abandoning their investment in DUMPSTER Containers.

The SUPER DUMPMASTER makes its rounds to each converted container, mechanically empties the contents into its 30 cu. yd. packer body and compacts the material to a fraction of its former volume with the 85,000 lb. force of its packer plate. Rather than haul each container to the disposal area, the SUPER DUMPMASTER carries the contents of many containers on each trip, cutting collection costs drastically.

The SUPER DUMPMASTER offers maximum flexibility because it handles converted DUMPSTER Containers up to 12 cu. yd. and all DUMPMASTER containers one through 12 cu. yd. capacities.

For a free survey by a qualified field engineer, write today.

Automatic hopper cover increases capacity and prevents scattering of refuse. Movable hopper extensions and circular side guards prevent escape of material during dumping operations.



**FREE BROCHURE**

Write today to
**DEMPSTER BROTHERS DEPT. AC-4**
Knoxville 17, Tennessee

Clearance arms raise Container from ground.

With hopper door open, container is rotated, emptying contents into the compaction body. It is then returned to the ground.

**Latest Addition to the**

**DEMPSTER DUMPSTER SYSTEMS ®**

Mfd. Only By
DEMPSTER BROTHERS
Inc.

# All-America Cities for 1960

**BLOOMINGTON**
Minnesota

**GRAND RAPIDS**
Michigan

**RADFORD**
Virginia

**DECATUR**
Illinois

**LAS VEGAS**
New Mexico

**RICHLAND**
Washington

**EAST PROVIDENCE**
Rhode Island

**MARIN COUNTY**
California

**SALEM**
Oregon

**SAN JOSE**
California

**WORCESTER**
Massachusetts

In the competition for the blue-ribbon title, All-America City, for 1960, those using the council-manager form scored almost a clean sweep. Of the 11 winners, all but one use this form of government, and the one non-council-manager municipality makes use of a council-appointed administrator. Of the 11 runner-ups, nine are council-manager cities. The awards, sponsored jointly by the National Municipal League and *Look*, recognize accomplishments and progress made by the local governments spearheaded by alert, informed citizen action.

The winners stretch broadly across the nation. From New England, the judges picked East Providence, R. I., and Worcester, Mass. From the South, they selected Radford, Va. From the Midwest, they chose Bloomington, Minn., Decatur, Ill., and Grand Rapids, Mich. From the Southwest, they selected the Town of Las Vegas, N. M.; from the West Coast, Marin County and San Jose Calif.; from the Northwest, Richland, Wash., and Salem, Ore.

### Bloomington, Minn.

. . . started on its road to national recognition of its civic excellence when residents awoke to the fact that water coming from their faucets was polluted. Bloomington was a little farm community (of about 3,500 prior to World War II) lying in the Minneapolis-St. Paul metropolitan area. Today it has 52,000 and is still growing. While it worked manfully to keep school facilities ahead of this booming urbanization, until recently it lacked both public water and sewers. One day a local attorney sent a sample of tap water from his private well to the state health department and learned that he was endangering the health of his family and friends by letting them drink it. This lawyer and his neighbors set about to rectify this and today Bloomington is completing a $16,000,000 project that will provide safe drinking water.

### Decatur, Ill.

. . . until recently was middle-aged, complacent and sliding downhill. Its central business district was traffic-clogged and had little in parking facilities. Slums were reaching out to damage its most attractive sections. Industry carefully moved outside the city limits and the city's water reserves became low.

But Decatur wasn't as middle-aged as it thought. In 1958, a citizen group campaigned for and won a council-manager form of government. Immediately thereafter, it started a $2,500,000 street program, a $5,000,000 water-improvement plan, and an urban-renewal project. Merchants participated to purchase off-street parking sites, and today Decatur stands rejuvenated.

### East Providence, R. I.

. . . had long struggled with the super-democratic form of town-meeting government, useful in the pre-civil war days but impractical under present conditions. Some ten years ago, a Citizens' League started campaigning for a new city charter, and ran head-first into old-line politicians. Nevertheless they overcame this opposition, won a council-manager form of government in 1959, and today have reorganized the city's finance and public-works departments, improved the water system, instituted a civil-service system, cut bonded indebtedness by $2,658,000 and reduced the tax rate.

### Grand Rapids, Mich.

. . . had the dubious reputation of operating a "fun house" for a city hall. East Siders and West Siders apparently enjoyed feuds more than the best interests of their city. A new turnpike ended at the city limits because nobody would agree on its route through town. Slums rotted the city's center and people moved gradually away. Suburbs firmly refused annexation despite the need for city services.

Eventually the feuding factions realized that they were hurting themselves more than each other. They approved tax increases for the city's share in a new airport and an urban-renewal program to replace slums with an industrial park, government buildings and business. They selected the turnpike route, and last year nine suburban areas voted to join the city.

### Town of Las Vegas, N. M.

. . . is a community of some 6,000 residents across the river from the bigger city of Las Vegas, also in New Mexico, neither of which should be confused with the more colorful Las Vegas, Nev., more than 500 miles away. It is an old Spanish community that had been doing nothing for a quarter of a century. However, its mayor, Navy veteran Junio Lopez didn't think much of this do-nothing program and discovered that many of his fellow citizens were annoyed with it also. As a result, the town tripled its budget, built new sidewalks and streets, reorganized its police department, constructed a community swimming pool, and brought life and vigor to the municipality.

### Marin County, Calif.

. . . is one of the most beautiful urban areas in the United States and intends to stay that way. It lies just across the Golden Gate from

*(Continued on page 159)*

# DO VOTERS LIKE AUTOMATIC VOTING MACHINES?

In an Oklahoma municipal election last April, polling place official interviewed every voter. Here are the results as published in the local paper

| | |
|---|---|
| *While voting:* | |
| No difficulty | 99.93% |
| Some difficulty | 0.07% |
| *After voting:* | |
| For machines | 98.58% |
| Against machines | 1.42% |

PRODUCTS FOR THE PUBLIC GOOD

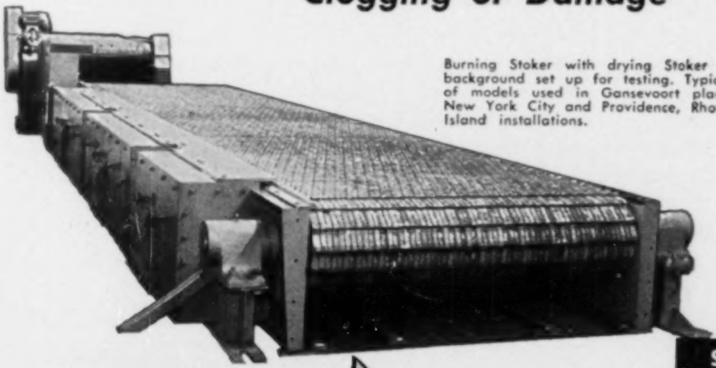
**AUTOMATIC VOTING MACHINE**

*division of* Rockwell Manufacturing Company

Jamestown, N. Y.

---

## *Original Overlapping Link Design on Illinois Incinerators Eliminates Possible Clogging or Damage*



Burning Stoker with drying Stoker in background set up for testing. Typical of models used in Gansevoort plant, New York City and Providence, Rhode Island installations.

Overlapping Design of links or keys on both the chain-grate and bar-key models prevents clinkers or non-flammable items from catching between the links causing possible damage to the stoker and reduces sifting of material through the grates.

Cast Steel links are used on both models unless otherwise specified, as cast steel affords greater resistance to heat and abrasiveness than does ordinary cast iron.

Automatic feed and continuous discharge of decontaminated residue eliminates heavy stoking and cleaning.

**CUSTOMIZED TO YOUR NEEDS**

Built in any size up to 24 feet wide. Any number of tuyeres for most efficient zone control. Supervised assembly at your plant.

**YOU SPECIFY — WE SATISFY**

**SEND COUPON TODAY**

Illinois Stoker Co.
Alton, Illinois
Dept. AC 461

Gentlemen: We're interested. Please send full details.

FIRM NAME ____________

ADDRESS ____________

CITY ____________ ZONE ____ STATE ____

SIGNATURE ____________

**Illinois Stoker**

Manufacturers of:
INDUSTRIAL STOKERS • INCINERATOR STOKERS • SINTERING MACHINES

# NOW SHE'S REALLY HAD IT!

*Economical malathion-Lethane combination gives 30% better kills than presently-used insecticides ...controls resistant strains, too*

60% kill of mosquitoes in area control work is no longer good enough. 90% *plus* is what you can expect with a malathion-Lethane combination. The cost? Comparable to presently-used but *far less effective insecticides.*

### Controls larvae and adults

Malathion plus Lethane gives spectacular results on both life stages. While recommended rates are generally higher, 1/10 lb. per acre has given excellent control of adult mosquitoes in Florida. Hundreds of thousands of acres are being treated yearly for larvae in California at 1/2 lb. per acre with similar results.

### Controls resistant strains

While malathion is replacing less effective insecticides in all areas, it is particularly useful in the many areas where mosquitoes have become resistant to chlorinated insecticides. Here, authorities have switched almost exclusively to malathion because it is *the* phosphate with low toxicity to warm-blooded animals. The U.S. Public Health Service reports that malathion is actually less toxic than DDT. Vector control authorities, park and city managements are specifying malathion for its combination of mosquito-killing power and safety in use. It can be applied by air, thermal fogging and mist spraying with equally good results.

### Formulations widely available

Malathion formulations are supplied to area control authorities by many well-known manufacturers under their own brand names. *Write to American Cyanamid Company,* maker of technical malathion, for detailed information on area mosquito control. American Cyanamid Company, Agricultural Division, New York 20, New York.

*The label instructions on Cyanamid products, and on products containing Cyanamid ingredients, are the result of years of research and have been accepted by Federal and/or State Governments. Always read the labels and carefully follow directions for use.*

CYANAMID

**MALATHION**

**INSECTICIDES**

*(Continued from page 156)*

San Francisco. Local citizens have fought subdividers, encouraged the creation of county, state and federal parks, beaten back an attempt to stop the construction of a civic center and fair grounds. They pioneered a county program of urban renewal which proved that urban beauty and progress could go together.

Marin County is the only winner this year that is not a council-manager form of government. However, it does have a county administrator, appointed by the county governing body, who serves in the same way without need for a charter change.

### Radford, Va.

. . . needed new industry. So the people here took a good look at their municipality to see what would be needed to make it the type of place that industry would like. The first was to bury the old rivalries between East and West Radford. Quickly following this was a new airport, improved water and sewerage facilities, renovation of the central business district, the area's first vocational high school. And, with buildings provided by the city, and some local financing, the first two industries moved in.

### Richland, Wash.

. . . was a federally owned "company town" until a few years ago, established for the workers of the Hanford plutonium production plant. However, it won its independence, after a ten-year fight, in 1958. Today it is incorporated as a first-class city with the council-manager plan of government. It has won national awards for police and fire protection accomplishments and currently is building $2,000,000 in new schools.

### Salem, Ore.

. . . uses the prescription, "massive cooperation" to cure the malady of regional stagnation. The Salem area has 147 political subdivisions, including school and special districts, until recently all acting without any coordination. Rather than create a new political "superdivision" embracing them all, the citizens of the area met to create a voluntary Intergovernment Cooperation Council (ICC), and a program called "massive cooperation." Last year, ICC was able to win acceptance of 32 of its 81 recommendations, and saw eight major regional programs started in such fields as port development, parks, and joint purchasing.

### San Jose, Calif.

. . . is living proof that a city can soar like a satellite and still keep abreast of its services. In the last decade, San Jose boomed upward from under 100,000 to over 200,000, and is almost in a dead heat with Orlando, Fla., as the fastest-growing city in the nation. If this growth continues, San Jose promises to be larger than San Francisco before the fabled year 2000 A.D. But the people here have kept planning and development on a par with growth. Four years ago, they bonded themselves for an investment of $23,000,000, and this year they voted another $44,000,000 for services varying from schools to sewerage, from freeways to parks and human freedoms.

### Worcester, Mass.

. . . feels that more of its citizens take active part in civic affairs than in any other urban area in the nation. Citizen groups separate from national parties dominate the city. The two largest, the Citizens' Plan E Association and the League of Women Voters, have over 2,000 active members each and both spear-

*(Continued on page 161)*

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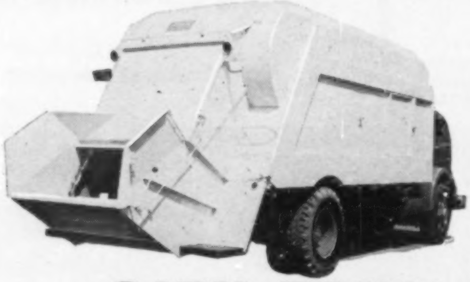

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*(Continued from page 159)*

headed the active campaign that led to the adoption of the council-manager form of government. Another group, the Citizens for Neighborhood Improvement, has 53 neighborhood associations. This organization grew from a slum survey by students of Worcester Polytechnic Institute and has upgraded health, housing, traffic and playground facilities. Another group, the Emergency League for School Construction, has stimulated an $8,500,000 school-building program. And a Committee on Aging last year established the first municipal information center for the aging in the United States to provide them with a professional consulting service.

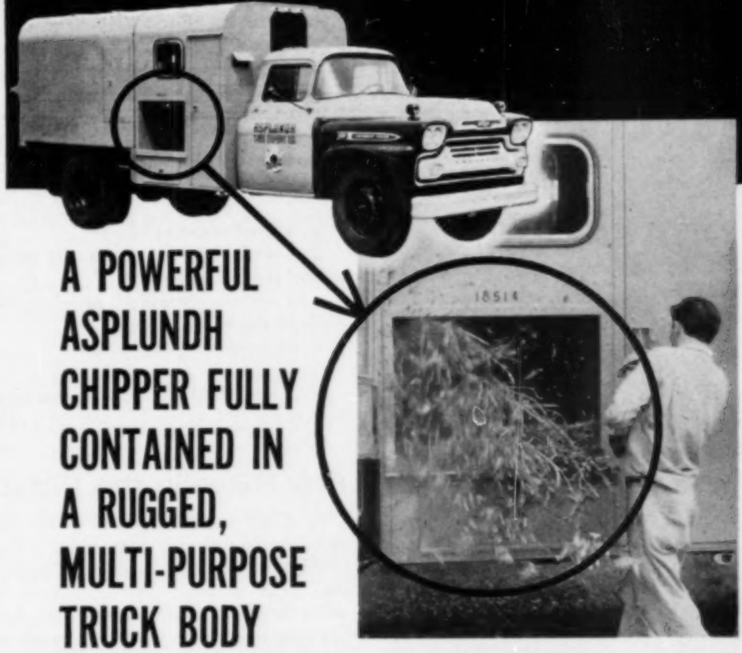
## How the All-America Cities Contest Started

This is the 12th year of the All-America Cities contest. It began in 1949 through the chance inquiry of a girl reporter at the League's National Conference on Government in St. Paul. In trying to develop a good lead for her story about the conference, she asked for the names of the best cities in the nation. "The All-America Cities," she said, "like the All-America football team."

League officials were alert enough to recognize a good suggestion when they saw it, and set about to select this "team." For the first three years, the *Minneapolis Tribune* published the names of the winners. In 1952, *Look* co-sponsored the contest with the National Municipal League and greatly expanded its scope. A city of any size is eligible. Over the years, the jury has selected great metropolitan centers like St. Louis and Chicago and one little community of only 400.

The All-America selections have recognized success of local communities in recovering from natural disasters such as floods or tornadoes; in overcoming economic disasters, such as the loss of a local industry; for adopting more effective forms of governments or better administration as a result of citizen action. Recent awards have honored enlightened programs of urban renewal.

The jury has been headed by Dr. George H. Gallup, director of the American Institute of Public Opinion. It has 12 members representing various phases of urban life from government, commerce, industry, labor, civic and cultural activities. During its early years, the late Harold S. Buttenheim, editor-in-chief of THE AMERICAN CITY, served as a jury member. ◄◄



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## "People Problems" in City Administration

A municipal administrator succeeds or fails because of "people problems" rather than technical difficulties. So counseled Don McMillan, city manager, Pasadena, Calif., at the recent conference of the International City Managers Association held in San Francisco. Mr. McMillan addressed his comments to those new managers who were attending their first conference.

City Manager L. P. Cookingham, Fort Worth, Texas, expanded this advice by recommending that a municipal administrator must have:

- **a good sense of humor**
- **a thick skin that doesn't let every critical remark upset him.**
- **a cast-iron stomach, equal to the trials of the banquet circuit**
- **an understanding wife**

Mr. Cookingham also counseled managers not to be a "jumper." He should not voluntarily leave to accept appointment in another city without serving for at least three to six years.

The administrator also should be meticulous in his moral and personal habits. He should be careful at cocktail parties, pay his debts promptly, watch out for flirtatious women, avoid any business connections or investments which may concern the city, avoid accepting gifts or gratuities, beware of the innocent invitation for a weekend at the beach, and above all, keep out of local politics.

To maintain good contact with the city council, Aaron Marsh, city manager, Hamilton, Ohio, advised making sure that all reports to the council are so complete that a councilman can answer all citizen inquiries. Also, unless an emergency arises, the administrator should always submit a written report before delivering an oral one. ◄◄

## Pay Rises in the Pittsburgh Area

A little more than 60% of the third-class cities, boroughs, and townships in the Allegheny County, Pa., area granted pay increases to some or all of their employees. Approximately 24% made changes in their fringe-benefit programs. This represents results from a study of 128 boroughs, townships and cities, exclusive of Pittsburgh, in Allegheny County, Pa., made by the Institute of Local Government, University of Pittsburgh.

The most significant pay increase —in money—for full time salaried personnel is for the managers, who, on the average, received $47 more per month than in 1959. In percentages, the most significant pay increase for full-time salaried personnel is for the bookkeeper position. On the average the position is paying 11% more in 1960 than in 1959.

The average changes occurring in the positions most commonly found in the participating political subdivisions are summarized in the accompanying table.

Twenty-five local jurisdictions reported improvement in their fringe-benefit programs. The most significant changes occurred in the various insurance or retirement programs adopted for selected or all full-time employees. Policies relative to sick leaves, paid vacations and holidays, reduced work week, and overtime payments were initiated or improved in several reporting political subdivisions.

The study, "Wage and Salary Programs", included detailed salary breakdowns for each position in each municipality. The Institute of Local Government, University of Pittsburgh, will send copies of the report to municipal officials requesting it. The price per copy is $1. ◄◄

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| Police chief | up 4% or $17 | per month |
| Patrolman | up 5% or $17 | per month |
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| Clerk-stenographer | up 2% or $ 6 | per month |
| Secretary | up 3% or $12 | per month |
| Heavy equipment operator | up 4% or $ .09 | per hour |
| Light equipment operator | up 4% or $ .07 | per hour |
| Skilled laborer | up 3% or $ .06 | per hour |
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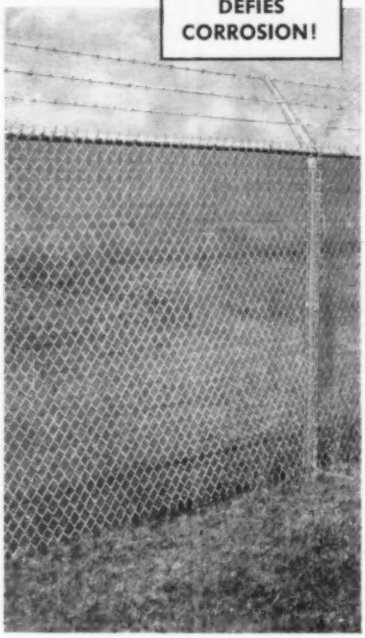

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## Durham Defeats City-County Government

In a special election held last January, voters in the city and county of Durham, N. C., defeated a proposed charter providing for the unification of city and county governments by a margin of 3½-1. The final count was 4,115 for unification and 14,355 against.

Both proponents and opponents of the proposed charter expressed surprise that the margin was so one-sided. Only one of 36 precincts in the city and county voted in favor of charter adoption.

Supporters of unification included Durham's Mayor E. J. Evans, State Senator Claude Currie, several city councilmen and former council members, and a score of civic leaders in the city and county. Opponents included County Attorney Percy Reade, County Sheriff Jennis Mangum, the chairman and two members of the county governing board, and one member of the special commission appointed to draft the charter. Local observers agreed that the election aroused more controversy than any other issue in Durham's recent history.

The charter proposing unification of the two governments was drafted by an 11-member City-County Charter Commission created under the provisions of a 1959 enabling act passed by the North Carolina General Assembly. The city and county appropriated $10,000 to cover the cost of a survey on the consolidation made by the Institute of Government of the University of North Carolina.

The proposed charter provided a unified board composed of nine members—four who live within present city limits, three who reside outside city limits, and two to be elected at large. It also provided for a manager for the unified county to administer the policies set by the board, which would be vested with the authority to appoint and remove the manager. In addition, the charter provided for the creation of an urban general-services district and one or more limited-services districts.

Mayor E. J. Evans expects to resolve the areas of conflict between the City Council and County Commissioners. He reports that most of the opposition centered around the new charter rather than the principle of unification. ◄◄

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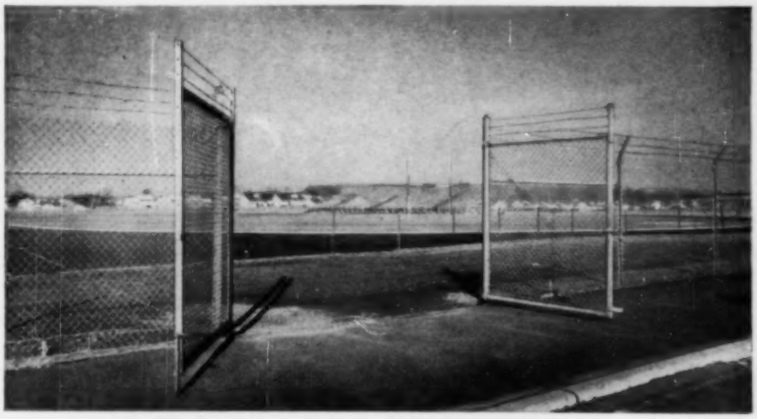

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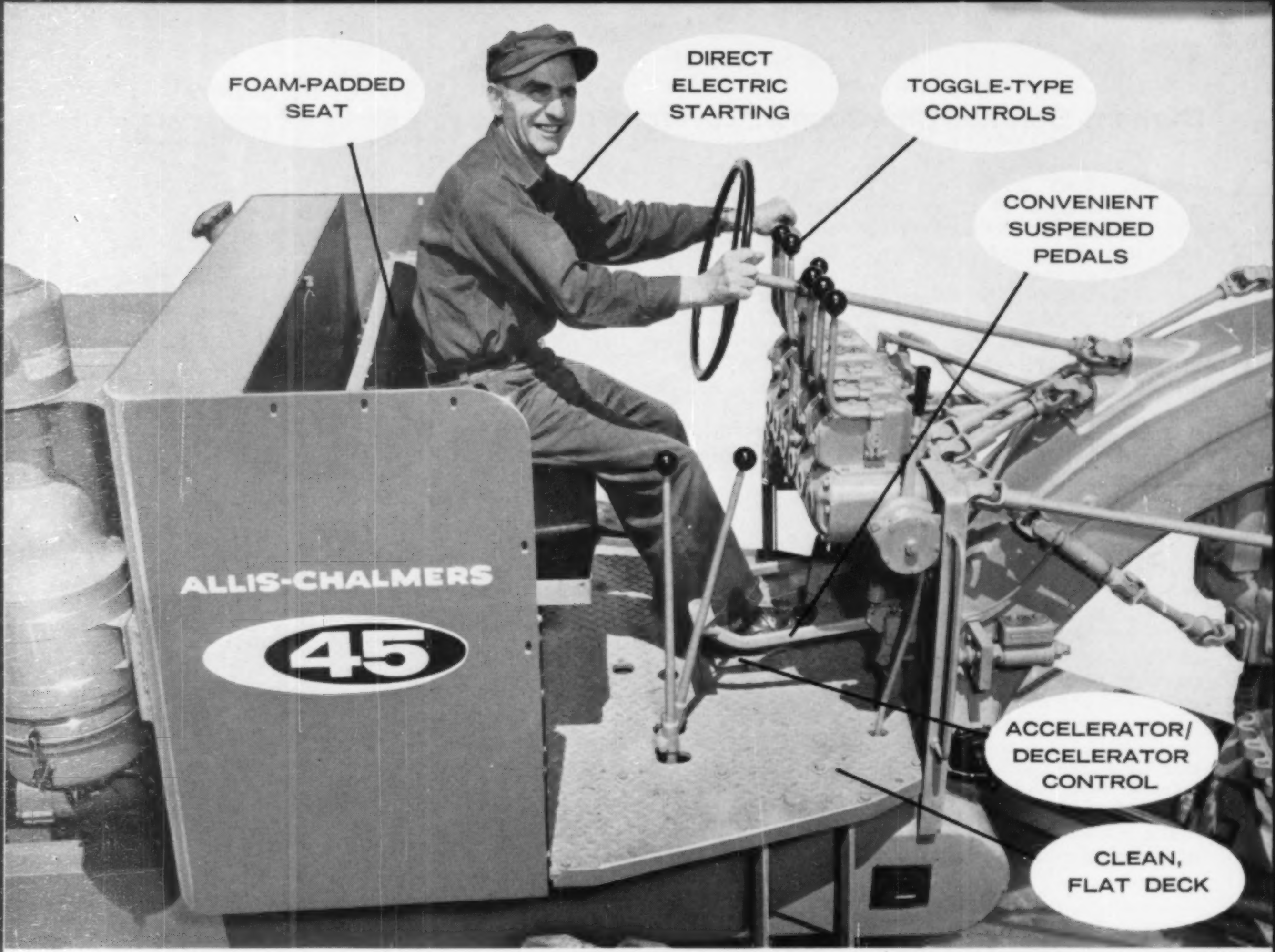
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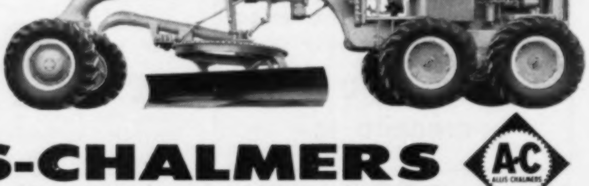

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A-C

# ZONING AND PLANNING NOTES

**Edited by NORMAN WILLIAMS, Jr.**

## Regulating the Sequence and Density of Development in the Suburban Fringe

NEW YORK. *Josephs v. Town Board of Clarkstown*, 198 *New York Supplement* (2d) 695 (Supreme (lower) Court, February 19, 1960).

The residential districts in the Clarkstown[1] zoning ordinance provided both for permanent semi-rural development (by acreage districts) and for good suburban development (i. e., with minimum lot sizes of 15,000 and 22,500 square feet). In addition, an intermediate district had a minimum lot size of about one acre, and a provision authorizing the Town Board to grant special permits for development on smaller, suburban-type lots, if specified findings were made. In general, these residential districts were mapped so that the area around existing villages in the town were zoned for immediate suburban development; the outermost parts of the town, away from the villages, were zoned for permanent acreage; and the areas in between were zoned in the intermediate (special-permit) district. This scheme was designed as a straightforward method of using zoning to deal with one of the major problems of American planning—the regulation of the density of development and of the sequence of development, in areas around the fringe of metropolitan areas. Accordingly, the regulations authorizing special permits for suburban development in the intermediate district required, *inter alia*, a finding that existing or planned community facilities (or reasonable possibilities for their expansion) were adequate to provide for the future residents in the proposed development. Under this scheme, therefore, suburban development would be concentrated primarily in the areas around the existing villages, thus providing an orderly pattern of growth; but additional adjacent areas could be made available for such development[2], subject to the condition that no undue strain was thereby thrown on community facilities (particularly schools).

In this case, the Town Board denied an application for a special permit for a 13-acre tract, located adjacent to the Palisades Interstate Parkway, with a finding (apparently undisputed) that the school for the area was already overcrowded. The developer challenged this denial, particularly on the ground that the Board had no right to take into consideration the inadequacy of school facilities as a basis for the denial. The Court upheld the Board's action[3].

In the opinion, the Court first reaffirmed a local community's power to regulate density of population by zoning—and noted that the statutory bases of zoning, as set forth in the enabling act, specifically included facilitating the adequate provision of schools.

> "Now, incidental to the evils of overcrowding and undue concentration of population are generally the lack of proper school and educational facilities. The extent of future needs on account of such facilities and plans therefor are matters relative to and of important consideration in connection with zoning. As noted above, Town Law, section 263, expressly mentions facilitation of adequate provision of school requirements as one of the purposes of zoning regulations."

The Court then proceeded to hold explicitly that a community may regulate its growth by taking into consideration the expected impact on public school facilities.

> "It is all very well to speak generally of an absolute duty on the part of a municipality to supply necessary

*(Continued on page 167)*

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[1] The Town of Clarkstown includes the largest area of prime development land in Rockland County, across the Hudson River from Westchester, and newly-accessible by the New York Thruway-Tappan Zee Bridge and by the Palisades Interstate Parkway.

[2] This scheme has another substantial advantage, in contrast to the common suburban policy of using acreage zoning to hold off residential development in outer areas, and then subsequently rezoning these areas for smaller-lot development. For, under the Clarkstown scheme, the areas first zoned acreage but marked for subsequent suburban development are explicitly indicated as such; and thus there is no danger that someone may build in such areas, in reliance on the acreage zoning, and later find that acreage was not really intended as the permanent pattern.

[3] The fact situation here was complex and the legal proceedings are still being reviewed at the local administrative level.

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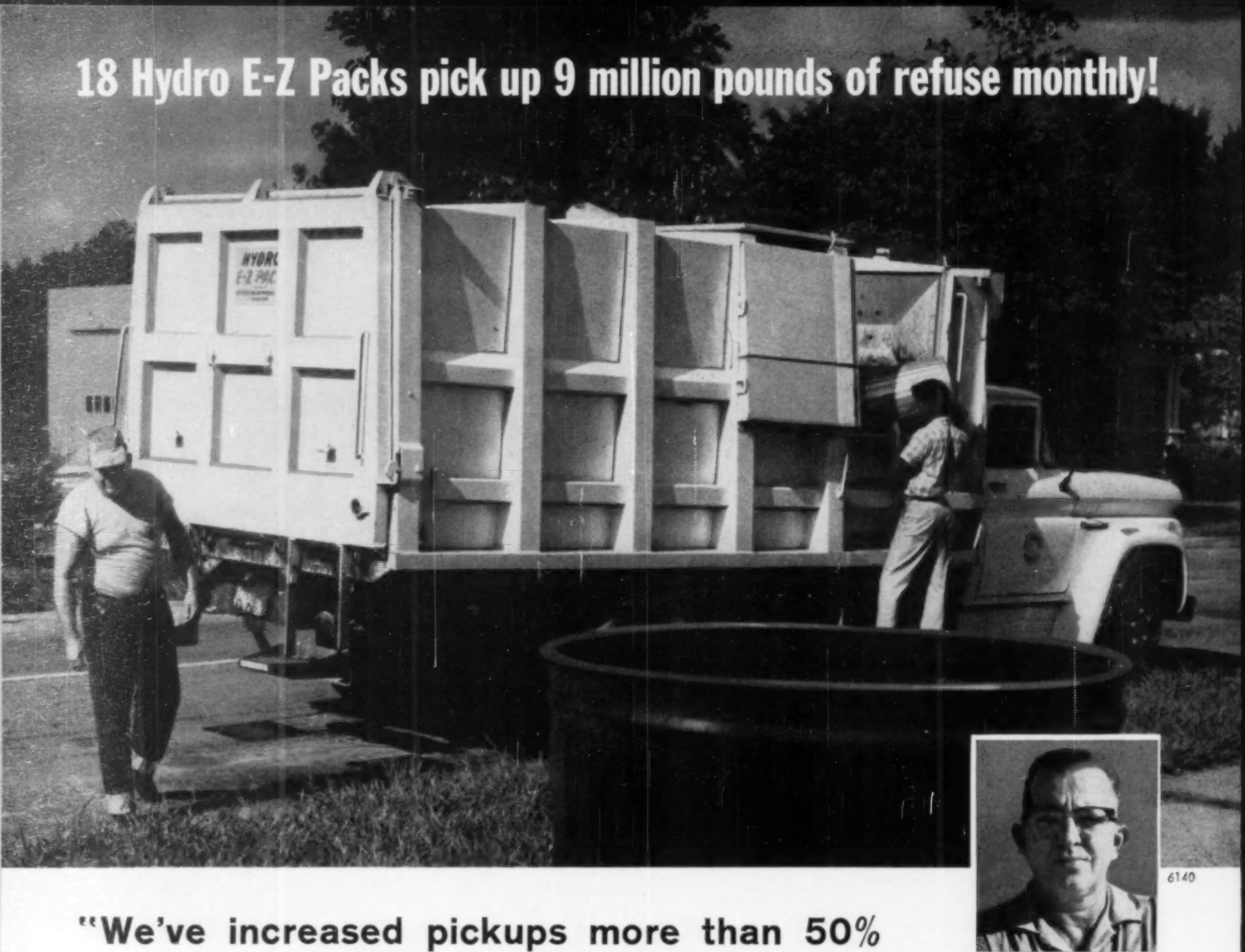
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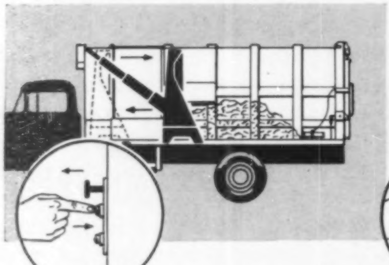

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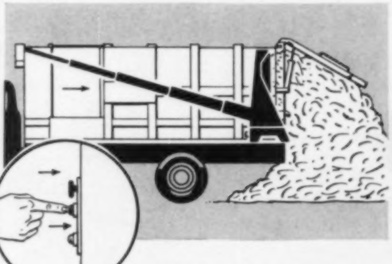

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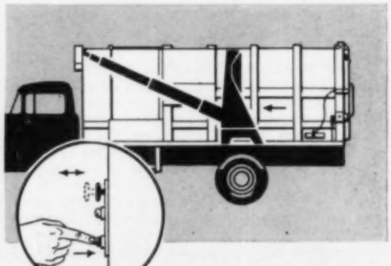

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*(Continued from page 165)*

school, highway and other facilities as it grows and expands in population and as the need for increased facilities arises, but it is clear that the duty of a municipality in this regard will not bar it from the right to reasonably regulate and control the density of population in specified districts in the interest of public welfare and to avoid unnecessary hardship to individuals and taxpayers. The question should be and is whether or not the action of the municipal authorities is reasonable in a particular case.

> "Here, by specific provision of the local ordinance (para. iii and iv of Sec. 4.32 (F), supra), the Town Board, in order to grant petitioner's application, was required to find that the existing community 'facilities or plans or reasonable possibilities for the expansion of such facilities are adequate to provide for the needs of future residents of the proposed development;' also that 'the health, safety, welfare, and morals of the Town will not be adversely affected.' Clearly, these provisions are reasonable and valid and it is concluded that they not only did authorize but required the Board, in rendering its determination, to take into consideration the threatened serious inadequacy of school facilities. In fact, it appears that everything reasonably possible is being done by the local authorities to meet the urgency in the school situation. Certainly, the situation would become more urgent in the event zoning requirements were eased to increase the population density in the school district; and the action of the Town Board here is nothing more than an attempt to help stabilize the problems created by the influx of new homeowners to a point where the school district can cope with them."

While the emphasis in this opinion is more on the regulation of density than on the sequence of development, this opinion (even by a lower court) is an important development in American zoning. There has been a split of authority in the existing case law as to whether, and to what extent, police-power regulations on the development of private property may be based upon the expected impact on public facilities; there are plenty of cases pointing in both directions. In this situation, legal pioneering must necessarily move carefully, with substantial documentation and solid legal reasoning. This is a clear-cut decision upholding a carefully thought-out scheme to regulate development, taking into consideration, *inter alia*, the availability of community facilities. Under the rather elaborate scheme in this ordinance, the applicant for a special permit to proceed with higher-density suburban development in the intermediate district is in the position of an applicant for a special favor, not generally available in the district; and so any presumption in his favor is reversed. As the Court put it:

> "Clearly, the petitioner has no vested right to the special permit sought. By due regulation, his property is in a district where a minimum lot area of 40,000 square feet is required for residences. Such is declared by the local ordinance to be the proper square foot area for residential lots in the district. It is solely within the discretion of the Town Board as to whether or not the petitioner shall have a special permit having the effect of reducing the lot area requirements and thus, increasing, the density of population in the District."

This decision is a matter of special satisfaction to the author of this column, who was responsible for the background legal work and the draftsmanship of the original ordinance involved.

## Filling Station in Business District— Significance of Trend of Recent Development

NEW YORK. *Fopeano* v. *Murdock* 198 *New York Supplement* (2d) 377 (Supreme (lower) Court, Feb. 4, 1960).

In this case, the New York City Board of Standards and Appeals granted a special permit (referred to as an "exception") for a filling station in a "business district," in accordance with specific authority in the local zoning resolution. McDonald Avenue is a strip commercial area, several miles long and located under an elevated rapid transit line, which has been substantially infiltrated with manufacturing establishments, many of them garment shops; and a "business district" in New York City permits most kinds of manufacturing, at least for one-story shops. A number of warehouses have been built in the immediate area since the war. In arguing to uphold the permit, (which had been denied several years before), the city authorities emphasized that the trend in the area (i. e. along McDonald Avenue) was towards industrial use, and also that more gas stations were needed as a result of increased automotive traffic. The opinion upheld the Board's determination as reasonable. This is merely an orthodox filling station case, with only one claim to special interest—a clear-cut judicial holding, not too commonly found, upholding the widespread planning practice of basing zoning regulations in part on the trend of recent development in an area.

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- Covers path up to 8" wide.
- Cost averages between 1¢ and 4¢ per foot of line removed.
- Compact: operates in traffic. No need to block off streets.
- Easy and safe to use.

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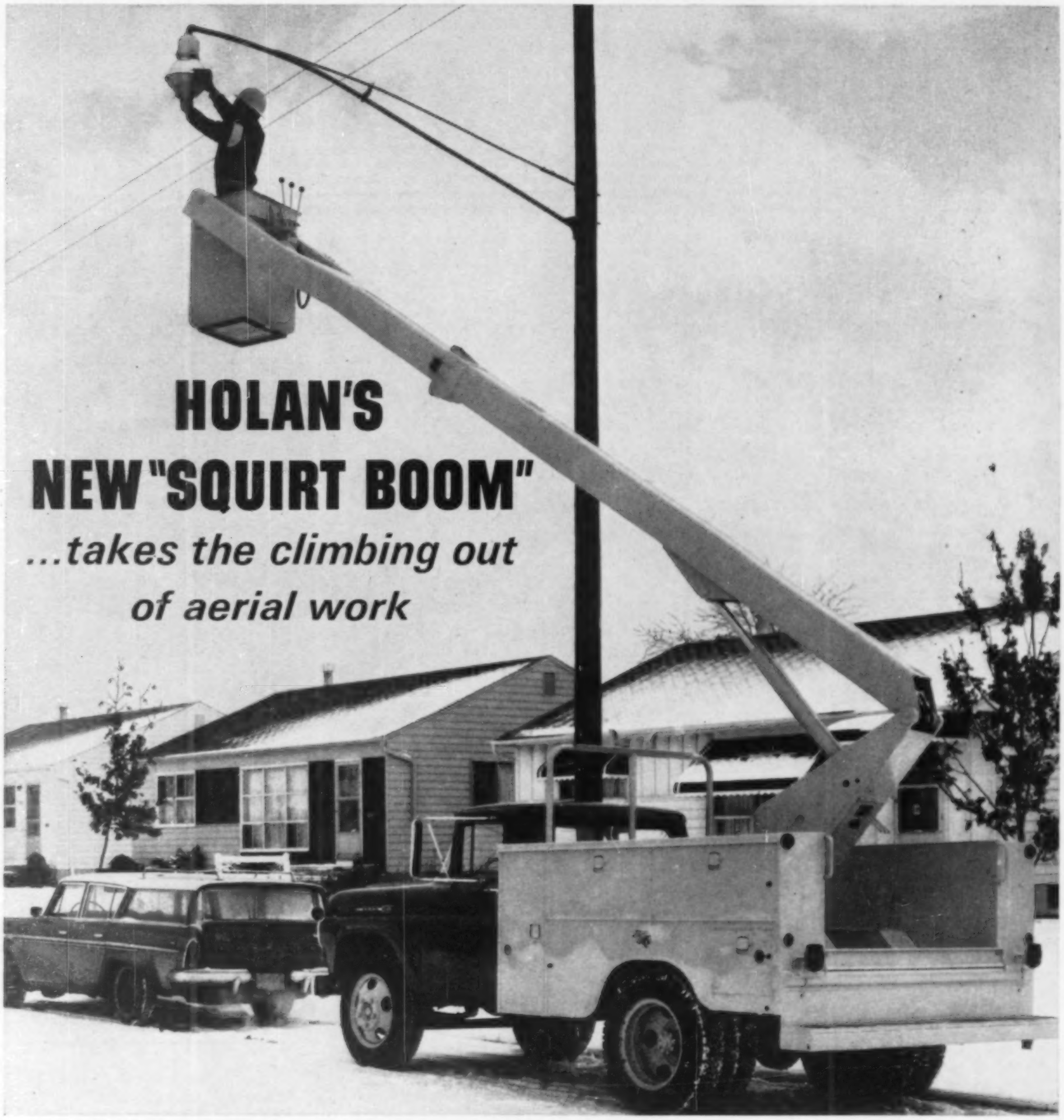

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# LEGAL NOTES AND DECISIONS

**Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS, Charles S. Rhyne, General Counsel**

### Building Permit for Filling Station Approved

In action concerning application for permit to erect gasoline filling station on land zoned for general business use which expressly excluded automotive businesses, held where evidence showed owners could not use land for other purposes without loss permit granted. *Morin* v. *Zoning Board of Review of City of Warwick*, 153 A.2d 149 (R. I., July 13, 1959)

### Condemnation for Highway Upheld

In action by city to take realty for municipal street and highway purposes, held finding as to property value and compensation for taking was supported by evidence. *City of Huron* v. *Jelgerhuis*, 97 N.W.2d 314 (S.D., June 23, 1959)

### Contracts—
### Competitive Bidding Procedures Invalid

Where instructions to competitive bidders cause uncertainty such as to allow discretion on part of contract-making officials or to afford opportunity for abuse, held competitive bidding invalid even in absence of any wrong doing. *Gale* v. *City of St. Paul*, 96 N.W.2d 377 (Minn., May 11, 1959)

### Dedication—
### Plan to Build Road Approved

In action to enjoin town from building road on portion of property designated on map of subdivision as street, held evidence sustained finding that prior dedication was complete. *Di Cioccio* v. *Town of Wethersfield*, 152 A.2d 308 (Conn., June 3, 1959)

### Incorporation—Petition Upheld

In proceeding on petition for order incorporating village, held evidence showed that territory possessed essential characteristics of village and met all requirements for incorporation. *In re Incorporation of Village of Oconomowoc Lake*, 97 N.W. 2d 189 (Wis., June 2, 1959)

### Licenses—No Provision for Business—Arrest Invalid

Where city licensing ordinance did not require license for operating call office for dry-cleaning done outside city and person was arrested on charge of operating such business without license, held such arrest beyond city's jurisdiction. *State* v. *City of Butte*, 340 P.2d 535 (Mont., June 10, 1959)

### Parking Lot Is Public Utility

Where state constitution authorized municipal indebtedness for purchase or construction of public utility, held public parking lot owned exclusively by municipality is "public utility" and bond issue for same is valid. *City of Shawnee* v. *Williamson*, 338 P.2d 355 (Okla., April 14, 1959)

### Sidewalks—Fall Over Plant—City Liable

In action concerning injuries to pedestrian when he fell on clump of ice plant which had grown through fence onto sidewalk where there had been prior complaints as to ice plant, held city liable. *Rodriguez* v. *City of Los Angeles*, 341 P.2d 410 (Cal. App., July 7, 1959)

### Subdivisions—
### City Suit to Enjoin Sale Premature

Where city sued to enjoin defendants from selling any lots from land owned by them in city, held suit premature in absence of evidence that any such sale was contemplated even though defendants had previously sold tracts without obtaining approval. *City of Pittsburgh* v. *McNeil*, 151 A.2d 596 (Pa., May 28, 1959)

### Taxation—
### Property Tax on Federal Receiver Upheld

In action to recover real estate taxes assessed by city on property in position of receiver acting in behalf of United States, held city could properly impose such taxes. *Borock* v. *City of New York*, 268 F.2d 412 (2nd Cir., June 22, 1959)

### Zoning—
### Funeral Home in Residential Denied

In action concerning application for exception to ordinance to permit use of premises in residential district as funeral home, held where such exception would not serve public convenience application denied. *Budlong* v. *Zoning Board of Review of Cranston*, 153 A.2d 127 (R.I., July 15, 1959)

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# RECENT CITY MANAGER APPOINTMENTS

***Samuel E. Vickers* Phoenix, Ariz.**

***Donald P. Ziemke* Muskegon Hts., Mich.**

***Kenneth K. Conrey* Spearman, Texas**

***Chester A. Hostetler* Anchorage, Alaska**

***James L. Asher* Pocomoke City, Md.**

***George G. Ullom* Las Vegas, Nev.**

James L. Asher, manager of Whitwell, Tenn., has been appointed manager of Pocomoke City, Md.

Gordon Bennett, administrative assistant of Ottumwa, Iowa, has been appointed manager of that city, succeeding Frank H. Lawler.

Thomas A. Boothe, right-of-way buyer for Liberty County, Tex., and the state, has been appointed manager of Cleveland, Texas.

Richard H. Calland, acting manager of Beloit, Wis., since the death of Archie D. Telfer, has been appointed manager of that city.

Godfrey Collins has been appointed the first manager of Coldwater, Mich.

Kenneth K. Conrey, administrative assistant of Borger, Texas, has been appointed manager of Spearman, Texas, succeeding Leo Dacus.

Robert J. Eppley, manager of Northlake, Ill., has been appointed manager of Lombard, Ill., succeeding Charles Willis.

M. O. Gardner, manager of Forest Grove, Ore., for nearly 13 years, has been appointed manager of Pendleton, Ore., succeeding Andrew J. Browning.

Donald L. Grimes, administrative assistant, Highland Park, Ill., has been appointed manager of Emporia, Va., succeeding George R. House, Jr.

Homer Grove, a retired army officer, has recently been appointed manager of Sanford, N. C., succeeding T. Paul Watson.

John R. Hamman, has been appointed manager of Cushing, Okla., succeeding Clifton Lee. Mr. Hamman was formerly manager of Mangum, Chickasha and Ada, Okla.

L. T. Harper, assistant manager of Hutchinson, Kan., has been appointed first manager of Hermiston, Ore.

Hendrix A. Hearn, assistant manager of Valdosta, Ga., has been appointed manager of Cordele, Ga., succeeding S. E. Cox.

Gene Higgins, manager of Las Cruces, N. M., has been appointed manager of Fort Stockton, Texas, succeeding E. B. Ligon.

Chester A. Hostetler, acting city manager and former controller of Anchorage, Alaska, has been appointed manager of that city.

Elwood L. Koch, administrative assistant, Ferguson, Mo., has been appointed manager of that city, succeeding Robert C. Storey.

Leonard E. Leis has been appointed city director and engineer of Monroe City, Mich., succeeding Mark G. Dance. Mr. Leis was formerly director of public service of Toledo, Ohio.

W. T. Loman has been appointed manager of Durant, Okla., succeeding Don Dodge. Mr. Loman was previously manager of Pueblo, Colo., Midwest City, Duncan and Pawhuska, Okla.

Clay Lynch, administrator of Henderson, Nev., has been appointed manager of North Las Vegas, Nev., succeeding Robert M. Nelson.

Robert J. McNutt, manager of Southfield, Mich., has been appointed manager of Scottsdale, Ariz., succeeding Gordon W. Allison.

Kenneth Pearce, city engineer of Poughkeepsie, N. Y., has been appointed manager of that city, succeeding John J. Desmond.

William P. Reed has been appointed manager-clerk of Iron River, Mich., succeeding Donald J. Pedo.

Roy R. Robinson, Sr., has been appointed manager of Dothan, Ala., succeeding R. Powell Black.

Donald V. Smith, administrative officer and controller, Trenton, Mich., for the past three years, has been appointed manager of Southfield, Mich., succeeding Robert J. McNutt.

Robert E. Snavely, assistant manager of Manchester, Iowa, has been appointed manager of Guttenberg, Iowa, succeeding William Law.

Robert C. Stephens, assistant manager of Sunnyvale, Calif., has been appointed manager of Delano, Calif., succeeding Raymond F. O'Hara.

James F. Sullivan, assistant manager of Monterey, Calif., has been appointed manager of Ojai, Calif., succeeding J. Julien Baget.

Jack P. Sweitzer, city superintendent of Williamston, Mich., for two years, has been appointed first city manager of Cape May, N. J.

*(Continued on page 172)*

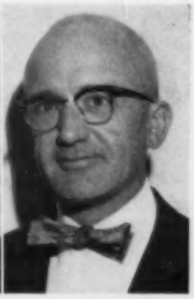
***James F. Sullivan* Ojai, Calif.**

***Richard H. Calland* Beloit, Wis.**

***Glenwood M. Wilson* Chandler, Ariz.**

***M. O. Gardner* Pendleton, Ore.**

***Donald L. Grimes* Emporia, Va.**


***Robert J. McNutt* Scottsdale, Ariz.**

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*(Continued from page 171)*

George G. Ullum has been appointed manager of Las Vegas, Nev., succeeding A. H. Kennedy.

Clifford R. Vermilya, a staff member in the Management Analysis Section, Budget Division, Department of Finance and Control of the State of Connecticut, has been appointed manager of Brandon, Vt., succeeding David L. Mann.

Samuel E. Vickers, manager of Long Beach, Calif., has been appointed manager of Phoenix, Ariz., succeeding Ray W. Wilson, who has retired. Mr. Vickers, who has a master's degree in public administration from Northwestern University, was previously manager of Vallejo, Calif. He was president of the International City Managers Association in 1956 and is presently a member of the ICMA Executive Board.

Gay Walker, manager of Donna, Texas, has been appointed the first manager of Mercedes, Texas.

George B. Walcott has been appointed manager of Lake Alfred, Fla., succeeding George G. Costello.

Glenwood M. Wilson, assistant to the finance director of Phoenix, Ariz., has been appointed manager of Chandler, Ariz.

Donald P. Ziemke, manager of St. Louis, Mich., for the last six years, was recently appointed city manager of Muskegon Heights, Mich.

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*International City Managers' Association*

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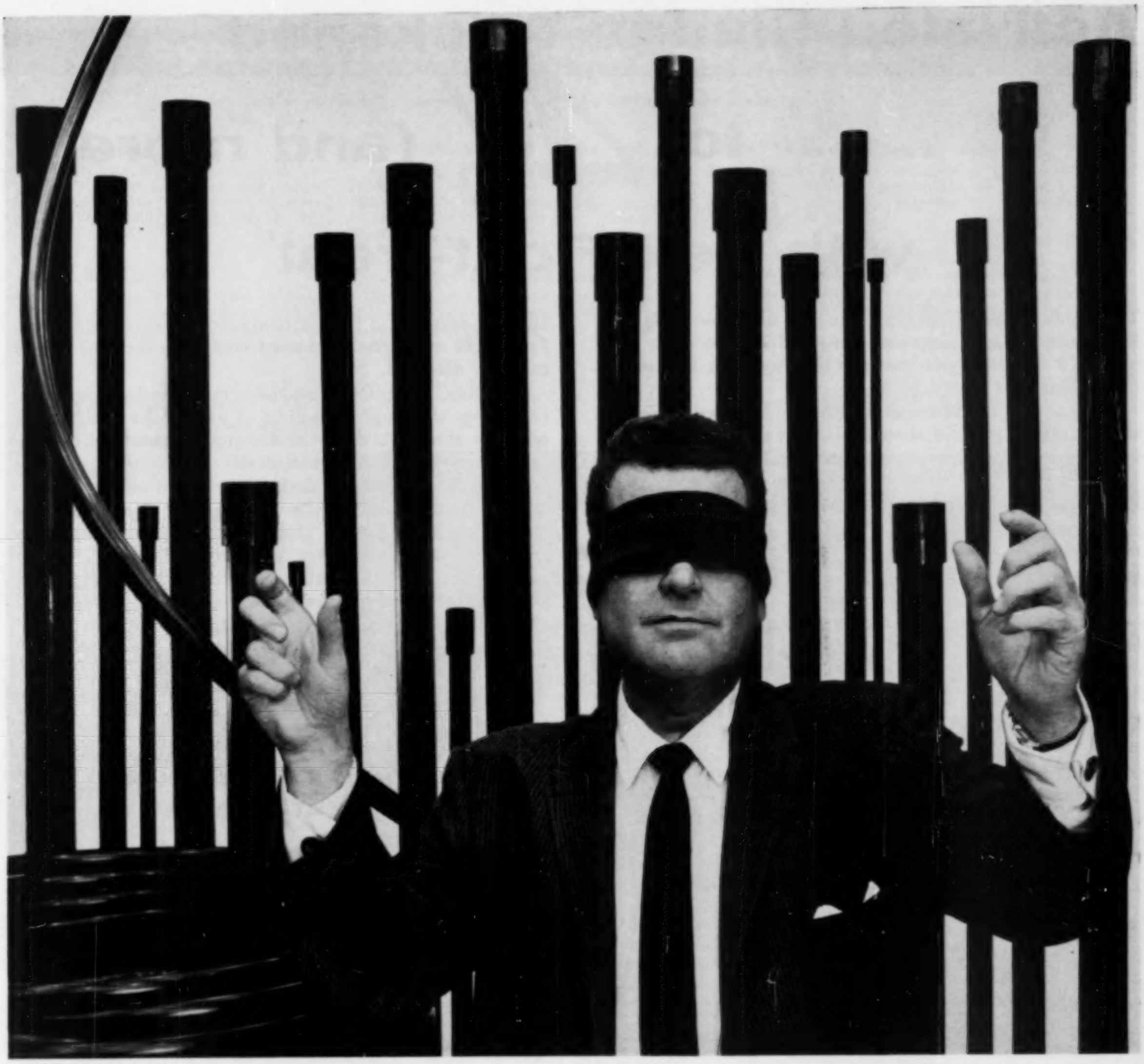
**(2) Socio-economic studies in the social, economic, and political sciences and in related fields.**

**(3) Physical planning dealing with design, land use, highways, subdivisions, etc.** ◀◀



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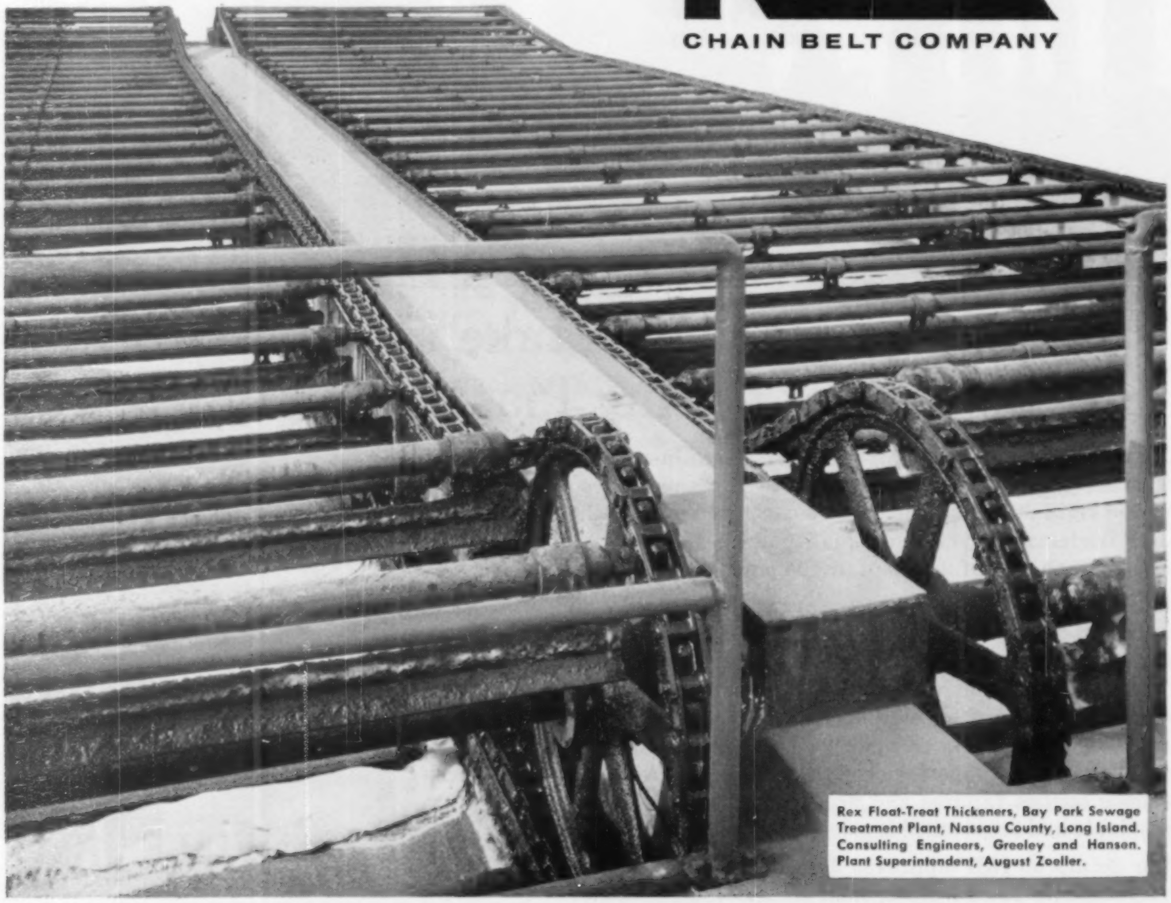

Rex Float-Treat Thickeners, Bay Park Sewage Treatment Plant, Nassau County, Long Island. Consulting Engineers, Greeley and Hansen. Plant Superintendent, August Zoeller.

## CONVENTIONS — WHEN AND WHERE

Conventions listed this month for the first time are indicated by an asterisk (*)

**Apr. 9-12—Tacoma, Wash.**
NATIONAL RECREATION ASSOCIATION—Pacific Northwest Section. Annual Conference (Winthrop Hotel), Dir., Fld. Serv., Charles E. Reed, NRA, 8 W. 8th St., N. Y. 11, N. Y.

**Apr. 10-11—Buffalo, N. Y.**
AMERICAN WATER WORKS ASSOC.—New York Section. Semi-Annual Meeting (Statler Hilton Hotel). Sec., Kimball Blanchard, c/o Neptune Meter Co., 22-22 Jackson Ave., Long Island City 1, N. Y.

**Apr. 12-14—Hutchinson, Kans.**
AMERICAN WATER WORKS ASSOCIATION—Kansas Section. Annual Meeting (Baker Hotel). Sec.-Treas., H. W. Badley, 119 W. Cloud, Salina, Kans.

**Apr. 12-14—Hutchinson, Kans.**
KANSAS WATER POLLUTION CONTROL ASSOC. Annual Meeting (Baker Hotel). Sec.-Treas., Howard F. Saiger, 1900 E. 9th St., Wichita, Kans.

**Apr. 14-17—Muskegon, Mich.**
NATIONAL RECREATION ASSOC. — Great Lakes Section. Annual Conference (Occidental Hotel). Dir., Field Services, Charles E. Reed, NRA, 8 W. 8th St., New York 11, N. Y.

**Apr. 18-20—Brookings, S. Dak.**
HIGHWAY SHORT COURSE. Annual Meeting (Union Building). Sec., Emory E. Johnson, Head of the Department of Civil Engineering, S. Dak. State Coll., Brookings, S. Dak.

**Apr. 19-21—Lincoln, Neb.**
AMERICAN WATER WORKS ASSOC.—Nebraska Section. Annual Meeting (Cornhusker Hotel). Sec., Joseph J. Rossbach, Metropolitan Utilities, 18th & Harney Sts., Omaha, Nebr.

**Apr. 20-22—Chandler, Ariz.**
ARIZONA SEWAGE AND WATER WORKS ASSOC.—Annual Meeting (San Marcos Hotel). Sec.-Treas., A. D. Cox, Jr., P. O. Box 5347, Phoenix, Ariz.

***Apr. 21-22—Baltimore, Md.**
AMERICAN PUBLIC WORKS ASSOCIATION—Va.-D. C.-Md. Chapter. Semi-Annual Meeting (Hotel Emerson). Sec.-Treas., Joe McCarthy, City Engineer, City Hall, Baltimore, Md.

**Apr. 22-25—Colorado Springs, Colo.**
AMERICAN ASSOC. OF AIRPORT EXECUTIVES. Annual Meeting (Broadmoor Hotel). Exec. Sec., F. R. Hoyt, P. O. Box 767, Wilmington, Del.

**Apr. 23-26—Greenville, S. Car.**
AMERICAN WATER WORKS ASSOCIATION—Southeastern Section. Annual Meeting (Hotel Poinsett). Sec.-Treas., N. M. de Jarnette, 1081 Lanier Blvd., N. E., Atlanta 6, Ga.

**Apr. 25-27—San Antonio, Texas**
AMERICAN PUBLIC POWER ASSOCIATION. Annual Meeting (Granada Hotel). Gen. Mgr., Alex Radin, 919 18th St., N. W., Washington 6, D. C.

**Apr. 26-29—Santa Monica, Calif.**
CALIFORNIA SEWAGE & INDUSTRIAL WASTES Assoc. Annual Meeting (Hotel Miramar). Sec.-Treas., Robert L. White, Box 231, Burbank, Calif.

**Apr. 26-29—Victoria, B. C., Can.**
AMERICAN WATER WORKS ASSOCIATION—Pacific N. W. Section. Annual Meeting (Empress Hotel). Sec.-Treas., Fred D. Jones, W. 2108 Maxwell Ave., Spokane 11, Wash.

**Apr. 30-May 3—Washington, D. C.**
CHAMBER OF COMMERCE OF THE U. S. Annual Meeting (Chamber Building). Exec. V. Pres., Arch N. Booth, 1615 H St., N. W., Washington 6, D. C.

**Apr. 30-May 4—Denver, Colo.**
AMERICAN SOCIETY OF PLANNING OFFICIALS. Annual Meeting (Hotel Denver Hilton). Exec. Dir., Dennis O'Harrow, 1313 E. 60th St., Chicago 37, Ill.

**May 2-4—Lafayette, Ind.**
PURDUE INDUSTRIAL WASTE CONFERENCE. Annual Meeting (Purdue Memorial Union). Chairman, Don E. Bloodgood, C. E. Bldg., Purdue University, Lafayette, Ind.

*(Continued on page 176)*

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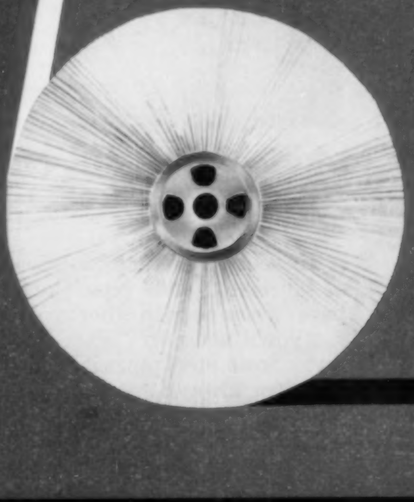

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## Conventions— When and Where

*(Continued from page 175)*

**May 8-9—Old Point Comfort, Va.**

Virginia Water Waste and Sewage Works Association. Annual Meeting (Hotel Chamberlin). Sec.-Treas., O. J. Hand, Asst. to the Manager, Hercules Powder Co., Hopewell, Va.

**May 8-10—Washington, D. C.**

National Highway Users Conference. Annual Meeting (Mayflower Hotel). Director, Arthur C. Butler, 966 National Press Building, Washington 4, D. C.

**May 10-12—Yuma, Ariz.**

League of Arizona Cities and Towns. Annual Meeting (Stardust Hotel). Exec. Dir., John J. DeBolske, 2727 N. Central Ave., Phoenix 4, Ariz.

**May 14-19—Minneapolis, Minn.**

National Conference on Social Welfare. Annual Meeting (Municipal Auditorium). Exec. Sec., Joe R. Hoffer, 22 W. Gay St., Columbus 15, Ohio.

**May 15-17—Chattanooga, Tenn.**

Tennessee Municipal League. Annual Meeting (Patten Hotel). Exec. Sec., Herbert J. Bingham, 226 Capitol Blvd., Room 306, Nashville 3, Tenn.

**May 15-18—New York, N. Y.**

International Institute of Municipal Clerks. Annual Meeting (Manhattan Hotel). Sec.-Treas., Arthur J. Shinner, Town Hall, Brookline 46, Mass.

**May 15-19—Detroit, Mich.**

National Fire Protection Association. Annual Meeting (Hotel Statler). Asst. Gen. Mgr., Chas S. Morgan, 60 Batterymarch St., Boston 10, Mass.

**May 21-25—Seattle, Wash.**

Municipal Finance Officers Assoc. of U. S. and Canada. Annual Meeting (Olympic Hotel). Exec. Dir., Joseph F. Clark, 1313 E. 60th St., Chicago 37, Ill.

***May 22-24—Ocean City, Md.**

Maryland-Delaware Water and Sewage Assoc. Annual Meeting (Hotel Commander). Sec.-Treas., W. McLean Bingley, c/o State Dept. of Health, 301 W. Preston St., Baltimore 1, Md.

**May 22-25—Manchester, Vt.**

National Recreation Association—New England Section. Annual Conference (Equinox Hotel). Dir. Field Services, Charles E. Reed, NRA, 8 W. 8th St., N. Y. 11, N. Y.

***May 24-27—Washington, D. C.**

National Rivers & Harbors Congress. Annual Meeting (Mayflower Hotel). Exec. Vice Pres., William H. Webb, 1028 Connecticut Ave., Washington 6, D. C.

**May 25-26—Pullman, Wash.**

Pacific Northwest Industrial Waste Conference. Semi-annual Meeting (Washington State University). Sec., William H. Knight, P. E. Head, Technical Exten. Serv., Washington State University, Pullman, Wash.

***May 31-June 2—East Lansing, Mich.**

Michigan Sewage and Industrial Wastes Assoc. Annual Meeting (Kellogg Center, Michigan State University). Sec.-Treas., D. M. Pierce, Michigan Dept. of Health, Lansing, Mich.

***June 1-3—Windsor, Ont., Can.**

American Water Works Association—Canadian Section. Annual Meeting (Prince Edward Hotel). Sec.-Treas., Dr. A. E. Berry, 72 Grenville St., Toronto, Ont., Can.

***June 4-6—Jekyll Island, Ga.**

Georgia Municipal Assoc. Annual Meeting (Corsair Motel). Exec. Dir., W. Elmer George, 406 Fulton Fed. Bldg., Atlanta, 3, Ga.

***June 4-7—Virginia Beach, Va.**

National Association of Housing & Redevelopment Officials — Southeastern Regional Council. Annual Meeting (Virginia Beach Convention Center). Sec.-Treas., B. H. Marshall, Jr., Dr. 3005, Azalea Sta., Wilmington, N. C.

**June 4-9—Detroit, Mich.**

American Water Works Association—Annual Convention (Cobo Hall). Exec. Sec., Raymond J. Faust, 2 Park Avenue, New York 16, N. Y.

***June 5-7—Tuscaloosa, Ala.**

Alabama Water and Sewage Assoc. Annual Meeting (University of Alabama). Sec., E. J. Finnell, Jr., Box 2987, University, Ala.

***June 5-7—Pullman, Wash.**

Pacific Northwest Sewage Works School. Annual Course (Washington State University). Sec., W. H. Knight, P. E. Head, Technical Extension Services, Washington State University, Pullman, Wash.

*(Continued on page 179)*

**SAN DIEGO COUNTY *chose* STEEL PIPE**

In 1959 the Second San Diego Aqueduct was constructed for the San Diego County Water Authority. This 30 mile line running over hill and dale, required rugged 76 in. and 73 in. welded steel pipe ranging in wall thickness from 3/8 in. up to and including 1-5/32 in. All pipe was in 32 ft. lengths with a spun mortar lining and an exterior mortar coating.

This 30 mile steel pipe line was laid by Young & Anderson Company, Brea, California.

**. . . every length was hydrostatically tested in the shop to AWWA standards!**

**STRENGTH**
**TIGHTNESS**
**ELASTICITY**
**ECONOMY**
**LONG LIFE**

. . . these are inherent qualities of fabricated *steel* pipe. Compare *steel* pipe with other types . . . you'll see why "wherever water flows, steel pipes it best." You can always specify *steel* pipe with confidence.

*For your copy of the latest steel pipe brochure, write—*

**STEEL PLATE FABRICATORS ASSOCIATION**
**105 West Madison Street • Chicago 2, Illinois**

Rugged Case-built backhoe cuts 14′ deep, reaches-out 16′9″ to dig, swings 180° with foot-pedal control for smooth, fast dig-and-dump. Regular buckets dig square holes 7′ long x 6⅔′ deep or 10½′ long x 9⅓′ deep. Bell-hole type also available among choice of 8 buckets.

Browny Case 530 loader lifts 2000 lbs. to full height, dumps with over 9′ clearance for quick dump-and-go. Choice of 5 buckets including 1-cu. yd. snow bucket . . . interchangeable pallet fork, crane boom, rubbish fork, and log fork for multiple material handling.

# How to work 2 places at once... to give faster service at low cost

DIGGING • LIFTING
HANDLE WITH CASE
*Utility*
LOADING • CARRYING

**One** of the easiest ways to handle more jobs per day is to be sure you're not over-equipped for "run-of-the-mill" work. Large machines have a definite place on your equipment list. But why let costly large-capacity machines dominate the list?

Simple arithmetic shows that for small and medium-size tractor jobs, *you can own two Case 530 Utility machines at the cost of one larger outfit*. You can select, say, a 530 Backhoe-Loader *plus* a 530 Loader machine and work two projects at once, instead of one. You'll give faster service on "complaint" calls, speed new construction and keep maintenance on regular schedule at lower cost. And at the same time, you'll cut per-job expense for fuel, upkeep, repairs and insurance. There are savings in transportation costs, too, because you can drive the rigs from job to job instead of tying up a truck or trailer and additional manpower.

Yet, with all this economy, rugged Case 530 tractors give you *heavy-duty work-power and exceptional job versatility*. They provide tremendous dig-power for loader work with high-torque *gasoline or (optional) diesel engine* . . . extra traction with special 14.9-24 tires . . . reverse direction instantly with synchronized shuttle transmission . . . back up 24% faster than forward . . . turn sharply with power-steer . . . travel job-to-job up to 18 mph. Loader unit accommodates instant-operable center-mounted rotary mower, rear rotary and side cutter-bar mowers. Rear hitch operates all-purpose blade, scarifier-scraper and other attachments for year-round usefulness.

Call your Case Dealer today for free demonstration of a *pair* of versatile Case 530's. See how you can nearly double your work output on a wide range of everyday trenching-loading jobs . . . give faster and better service, even on a limited budget.

**CASE**® *Utility*

**J. I. CASE CO., Dept. D1561, RACINE, WIS.**

☐ Send full details on Case 530 *Utility* Loader and Backhoe-Loader units. I am also interested in . . . . . . . . . . . . . . . . . . . . . .

Name. . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Title. . . . . . . . . . . . . . . . .

Employed by . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .

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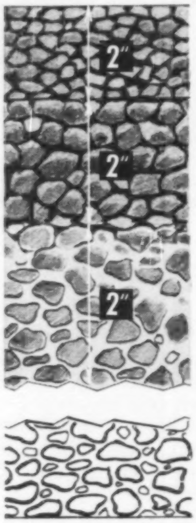
*CU-BL-26

# FOUND!

## A winning combination: Asphaltic concrete made with Chevron Asphalt over a Dilute Bitumuls Treated Base.

## *For "Deep-Strength" Construction PLUS Economy!*

**Realignment of U. S. Route #99 (Pacific Highway) between Albany and Eugene, Oregon, involves construction of twelve miles of new, heavy-duty pavement.**



4 inches Asphaltic Concrete made with Chevron Asphalt; laid in 2 lifts as indicated.

Top 2 inches of crushed stone base treated with diluted Bitumuls; then compacted.

Compacted base stone

The original "specs" called for construction of a compacted stone base, surfaced with 4 inches of asphaltic concrete. As a result of preliminary tests, however, a Field Change Order was issued specifying treatment of the top 2 inches of the base with an economical nine-to-one dilution of Bitumuls.

Dilute Bitumuls Treatment "controlled" the top of the base during surfacing; provided water-resistance that contributed to an overall stronger pavement. Over the base, two lifts of asphaltic concrete made with Chevron Asphalt were placed to complete the construction.

The job is under the direction of the Oregon State Highway Department. The contractor, Warren Northwest, Inc., has done a fine job of coordinating all phases of the job. One key factor in maintaining operations on schedule has been the dependable, on-time service on Bitumuls and Chevron Asphalt deliveries.

*Call office nearest for details on how Bitumuls Emulsified Asphalts and Chevron Paving Asphalts can be combined to give you better pavements at lower cost.*

**Dilute Bitumuls-Treated Base**

**Surfacing (made with Chevron Asphalt)**

**American Bitumuls & Asphalt Company**

320 MARKET, SAN FRANCISCO 20, CALIF.
Perth Amboy, N. J.
Baltimore 3, Md.
Cincinnati 38, Ohio

Atlanta 8, Ga.
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Portland 8, Ore.
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Inglewood, Calif.
San Juan 23, P. R.

BITUMULS® Emulsified Asphalts • CHEVRON® Paving Asphalts • LAYKOLD® Asphalt Specialties • PETROLASTIC® Industrial Asphalts

## Conventions— When and Where

*(Continued from page 176)*

***June 7-9—Seattle, Wash.**
Association of Washington Cities. Annual Meeting (Hotel Olympic). Exec. Sec., Chester Biesen, 250 Smith Hall, University of Washington, Seattle 5, Wash.

***June 7-9—Okoboji, Iowa**
Iowa Water Pollution Control Assoc. Annual Meeting (New Inn). Sec., L. F. Skorczeski, 207 S. 15th Ave., Marshalltown, Iowa.

***June 7-9—Colorado Springs, Colo.**
Colorado Municipal League. Annual Meeting (Antlers Hotel). Exec. Dir., Jay T. Bell, 2300 Broadway, Boulder, Colo.

***June 7-9—Springfield, Ill.**
Central States Sewage and Industrial Wastes Assoc. Annual Meeting (Leland Hotel). Sec.-Treas., Scott E. Linsley, 2400 Childs Rd., St. Paul 6, Minn.

***June 11-13—Monticello, N. Y.**
New York Conference of Mayors & Other Municipal Officials. Annual Meeting (Concord Hotel). Exec. Dir., Addison Mallery, 6 Elk St., Albany, N. Y.

**June 11-14—Washington, D. C.**
United States Conference of Mayors. Annual Meeting (Statler Hilton Hotel). Exec. Dir., Harry R. Betters, 1707 H. St., N. W., Washington 6, D. C.

***June 11-15—New York, N. Y.**
Air Pollution Control Assoc. Annual Meeting (Hotel Commodore). Exec. Sec., A. Arch, 4400 Fifth Ave., Pittsburgh 13, Pa.

***June 12-13—Ocean City, Md.**
Maryland Municipal League. Annual Conference (Commander Hotel). Exec. Sec., A. Beals, Box 276, College Park, Md.

***June 12-13—Rochester, N. Y.**
New York Water Pollution Control Assoc. Semi-Annual Meeting (Hotel Manger). Exec. Sec., R. C. Sweeney, State Dept. of Health, 55 Church St., White Plains, N. Y.

***June 14-16—Cleveland, Ohio**
Ohio Water Pollution Control Conference. Annual Meeting (Statler Hilton). Sec.-Treas., E. B. Ransom, 101 N. High St., Columbus 15, Ohio.

***June 15-17—Wilmington, Del.**
Eastern Association of Fire Chiefs. Annual Meeting (Hotel Du Pont). Sec., Edwin J. Clark, Box 328, Wayne, Pa.

**June 15-20—Washington, D. C.**
International Union of Local Authorities, sponsored by the U. S. Conference of Mayors, the American Municipal Assoc., and the International City Managers' Assoc. Annual Meeting. Exec. Dir., Schuyler Lower, Washington Secretarial, World Conference of Local Governments, Room 526, District Building, Washington 4, D. C.

**Sept. 24-27—Minneapolis, Minn.**
American Public Works Association. Annual Meeting (Municipal Auditorium). Exec. Dir., Robert D. Bugher, 1313 East 60th Street, Chicago 37, Ill.

**Modern Waste Disposal**
DEMANDS
**MODERN INCINERATORS**

***You tell us— We'll tell you—***

Tell us the population of your area. We'll tell you frankly why incineration is the best answer to your waste disposal problem . . . the type and size incinerator needed . . . Approximate construction and operating costs. No obligation.

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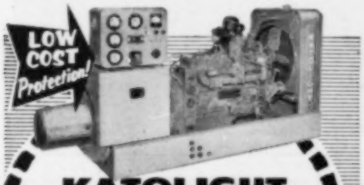


**KATOLIGHT STANDBY POWER**
**Gasoline, Gas Diesel Models to 750 KVA**
We all agree it is good business to insure against unforeseen losses due to fire, wind or accident . . . but none is available to cover loss of time, inconvenience, discomfort, dangers that power failures bring. With Katolight Power Plants you can keep your electrical equipment functioning until power is restored.

SPEEDS WORK! Low Cost!

**KATOLIGHT PORTABLE POWER**
**AVAILABLE ON DOLLIES OR TRAILERS**
Crews have "plug-in" power at their finger tips when and where they want it. Quick, steady power for operating electric saws, grinders, drills, hammers, heaters, sanders, paint sprayers. No delays . . . No nuisance power line hook-ups. 500 to 35,000 watts and up.

**BIGGER OVERLOAD CAPACITY**
**WRITE FOR NEW BROCHURE!**

**Katolight CORPORATION**
Box 891-25 Mankato Minnesota

**Vacuum-clean Pavements**
**the EASY, LOW-COST *"City Slicker"* Way**

Do you have the problem of picking up pedestrian dropped litter in your busy downtown street gutters? On parking lots, shopping centers, playgrounds? Then this compact, Jeep-mounted, **Tarco "City Slicker" is** your **most economical** answer.

The "City Slicker" cleans a 6½ foot path by means of vacuum and air power . . . no brooms or brushes to wear out or service. **Sucks** up and **separates** for quick handling: (1) all kinds of **light bulky litter:** newspapers, paper cups and wrapping, cigarette butts, tin cans; (2) dry **sand;** (3) light fine **dust.** Maneuverable and **safe** to operate in heavy traffic . . . maximum operator visibility. Dusty air cleaned in special air cleaners.

The "City Slicker" is **most economical.** The actual **operating cost is less than ¼ of the curb-mile cost of most other cleaning methods** . . . for every mile you use a "City Slicker" you will cut your present costs up to 75%. By using a "City Slicker" you **release your large power sweeping equipment** for more important dirt sweeping operations for which they are designed.

"City Slickers" are **now performing** money-saving litter collection work in **several large cities.** They can do the same for you. For details see your TARCO dealer or write to us.

**TARRANT MFG. CO.**
**23 Jumel Place, Saratoga Springs, N. Y.**

# SAN DIEGO GAS & ELECTRIC MEETS BOOM WITH BUCKEYE DITCHERS

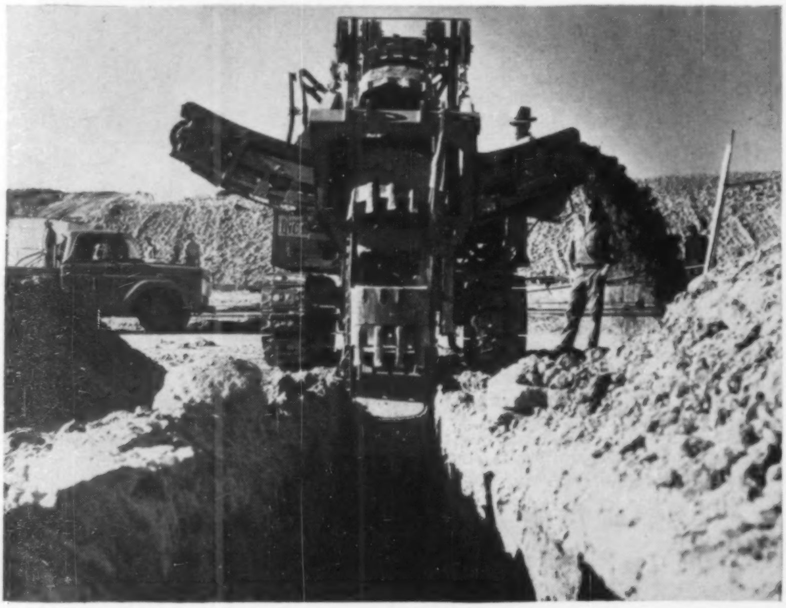
Naval installations, airfields, production of missiles and jetliners—San Diego is booming, and bringing plenty of work to the San Diego Gas & Electric Company. Example: in 1959 alone 28,788 new dwelling units were built, all needing new gas lines.

To handle one of its toughest jobs—digging trenches for the new gas lines—the utility operates a rugged team of 12 Gar Wood-Buckeye ditchers. These machines are matching the speed of modern construction methods, and operating with precision, ease, and economy.

Since their introduction, the Gar Wood-Buckeye 305, 307, and 308 utility ditchers have become recognized as the most modern on the market. One reason is hydraulics—all three models are equipped with a hydraulic wheel hoist and hydraulic conveyor drive. All three have main engine transmissions specially designed for ditcher use. All three have a split-shaft excavator drive for longer working life. And all three are operated by the simplest group of controls on any ditching machine.

For more than 60 years Gar Wood-Buckeye has been the choice of contractors, cities, and utility companies that want fast, precise ditching at the lowest possible cost.

## BUCKEYES ENGINEERED FOR TOUGHEST DIGGING



To meet fast production schedules through terrain as tough as San Diego's, the Gar Wood-Buckeye 305, 307, and 308 utility ditchers are more than just "ruggedly built." They are scientifically engineered to resist stress, to cut vibration to a minimum, and to deliver the greatest power to the digging wheel.

An all-welded panel truss frame supports the digging wheel and conveyor assembly of these machines—is exceptionally rigid and resistant to stress. The wheel itself is formed of two steel rings welded together for far greater strength. And the unique Buckeye digging buckets are of two-piece construction, for greater abrasion resistance and easier maintenance. Features like these are typical of Buckeye's extra measure of quality.

**GAR WOOD INDUSTRIES, INC.**
**WAYNE, MICHIGAN • FINDLAY, OHIO**

# MUNICIPAL AND CIVIC PUBLICATIONS

Publications on these pages are available from the addresses indicated and are usually free unless a price is given.

## Small-Size Sanitary-Sewer Design Guide

SMALL-SIZE PIPE FOR SANITARY SEWER LATERALS; PUBLICATION 507—*National Academy of Sciences, National Research Council, 2101 Constitution Ave., Washington 25, D. C. Revised,* 1960. *50pp.* $1.50.

A report of the study designed to provide the Federal Housing Administration with an authoritative statement of good practice governing the design, installation, and maintenance of lateral sewerage systems using small size (6- and 8-inch) sewer pipe. Recommendations include determination of service load, establishing minimum size and velocities, installation, inspection and various other design information. Supporting information includes the scope of the study, limitations, and nature and results of a survey made to collect data.

## Metropolitan Areas

METROPOLITAN COMMUNITIES—*Public Administration Service, Publications Division, 1313 East 60th Street, Chicago 37, Ill.* 1960. *229pp.* $8.

Probably as useful a collection of references on this dramatic phase of urban growth as one can conveniently get.

The compilation focuses upon government and politics, but it also includes, as background material, references concerning socio-economic characteristics and development of urban centers.

The bibliography is divided into two parts: Government and Politics In Metropolitan Areas; and Socio-Economic Background.

## Nuclear Civil Defense

RADIOACTIVE FALLOUT AND YOU—*Massachusetts Civil Defense Agency, 143 Speen St., Natick, Mass.* 1960. *16pp. 45 cents.*

Massachusetts provides its cities with the best advice that it can to furnish protection in case the "cold war" warms up a bit. The message is straightforward and blunt, serving to re-emphasize the nervous, nuclear-fission status of the world which no one really likes to recognize.

## Prize-Winning Finance Report

FINANCIAL AND STATISTICAL REPORT—*By A. M. Forger, Jr., Chief Accountant. City of Miami, P. O. Box 708, Miami 33, Fla.* 1960. *66pp.*

Two years ago, the Municipal Finance Officers Association awarded Miami a certificate of excellent conformance to good accounting principles. This year's report follows those prize-winning principles.

## Police Auxiliaries

CIVILIAN AUXILIARY POLICE—*Association of Washington Cities in cooperation with the Bureau of Governmental Research and Services, University of Washington, Seattle 5.* 1961. *48pp.*

At least 800 cities over 10,000 have an auxiliary police organization. This may be an important step in providing more adequate police service to the municipality. Municipalities generally limit the authority of civilian auxiliary police to protect the legal powers of the city police department and to protect the citizens from a group operating outside the law.

Usually they are unpaid volunteers organized and trained by the police department. As 73 towns in the State of Washington have up to five or more auxiliary police, the Association of Washington Cities, 250 Smith Hall, University of Washington, Seattle 5, Washington, decided to report on the subject. The result was a 48-page booklet prepared by Miss Ruth Ittner, municipal research specialist of the Bureau of Governmental Research and Services.

Auxiliary civilian police must be distinguished from special policemen who are privately employed as police, watchmen, or guards, as well as private detectives. Privately employed special police are required by ordinance to meet certain requirements before being commissioned by the chief of police for a limited or special purpose. Special policemen are given a certificate of appointment and a metal badge with a number assigned by the chief of police. Appointments may be revoked at any time by the chief of police and the badge must be returned. Private detectives may also be regulated by ordinance.

*(Continued on page 183)*

**control**

Triangle Brand
Copper Sulfate

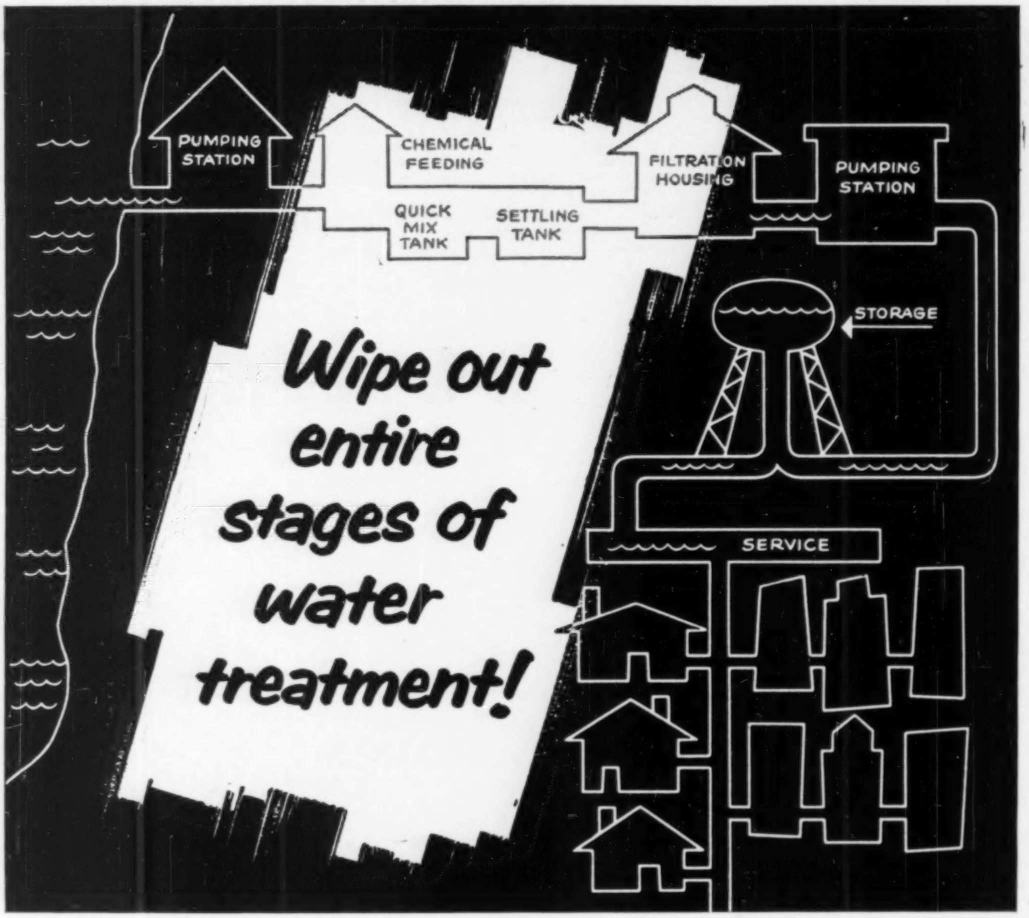
**for algae and aquatic weeds**

In small amounts, Triangle Brand Copper Sulfate controls algae growth and kills some of the more troublesome aquatic weeds. They disintegrate where they are, which prevents downstream infestation or clogged waterways.

In sewage pipes, Triangle Brand Copper Sulfate can be used in such low concentrations to control root and fungus growth that surface trees remain unaffected.

Two informational booklets, "The Use of Copper Sulfate in the Control of Microscopic Organisms," and "Copper Sulfate for Root and Fungus Control in Sanitary Sewers and Storm Drains," available on request.

**Phelps Dodge Refining Corp.**
300 PARK AVENUE, NEW YORK 22, N. Y.



## A complete Celite diatomite filtration system can eliminate the costs of conventional pre-treatment facilities

Now you can do something about skyrocketing per capita water consumption costs—as are dozens of municipalities every year. And get clearer, sparkling-bright water in the bargain!

Install one of today's small compact diatomite filtration plants, using Celite* filter aids. In many cases, raw water can be filtered directly, eliminating several of the costly conventional pretreatment stages—flocculation, quick-mixing tanks, and settling tanks, for example.

Result†: Filtration plants requiring only ¼ the space of sand plants of equal capacity. Capital costs cut almost in half—savings of up to 45%.

*Here's why.* Celite diatomite filters better than any other medium. Every cubic inch of the skeletal diatomite particles contains millions of microscopic filter pores. These are so minute they remove all suspended solids, including amoebae and algae, without flocculation.

Mined by Johns-Manville from the world's purest commercially available diatomite deposit, Celite is carefully processed for uniformity. You have a wide choice of grades for best balance of clarity and flow rate. For further information, call your nearby J-M Celite engineer. Write direct for free technical reprints and illustrated brochure. Johns-Manville, Box 14, New York 16, N. Y. In Canada, Port Credit, Ontario.

* Celite is Johns-Manville's registered trade mark for its diatomaceous silica products.

† See *Comparison Studies of Diatomite and Sand Filtration* by G. R. Bell, Journal American Water Works Association, September, 1956, or write for free reprint.

**JOHNS-MANVILLE JM**

*(Continued from page 181)*

The Seattle City Code, Ch. 12.04, authorizes the chief of police to appoint civilian auxiliary police as special police, requires them to meet the same requirements, and to serve without compensation.

Since auxiliary civilian police are not authorized by statute in the State of Washington but only by implication under the state civil defense act, it is important that any city or town with an auxiliary force enact ordinances to establish a civil defense organization and an auxiliary police force. When this has been done, municipal expenditures, such as furnishing uniforms, can be made legally.

In Washington an auxiliary policeman has authority only while in uniform. When off-duty, he reverts to his status as a civilian. Thus when a situation arises that requires police attention, while the auxiliary policeman is off-duty and out of uniform, a regular patrolman has to be summoned.

An important portion of the booklet is devoted to ordinances establishing auxiliary civilian police. The first is a suggested ordinance. It is followed by the actual ordinances establishing auxiliary police in the cities of Marysville, Wash., population 2,300; Hinsdale, Ill., population 9,000, and the sizeable Washington cities of Tacoma, Seattle and Vancouver.

## Urbanized County

ARLINGTON COUNTY, VIRGINIA, ANNUAL REPORT 1959-1960 — *Office of the County Manager, County Hall, Arlington, Virginia.* 1960. 52*pp.*

A workmanlike report from the only county in continental United States with no incorporated towns or cities within its boundaries (Hawaii also has no incorporated towns or cities). The county today is completely urbanized and the Supreme Court of Virginia has forbidden incorporation within the county boundaries.

## Slum Clearance

REPORT OF THE NATIONAL CAPITAL HOUSING AUTHORITY FOR THE FISCAL YEAR ENDED JUNE 30, 1959. *National Capital Housing Authority, Washington 25, D. C.* 1960. 85*pp.*

Washington, D. C., recounts its progress in ridding the nation's capital of slums.

## Street-Tree Plan

COVINA MASTER STREET TREE PLAN — *City Planning Commission, City Hall, Covina, Calif.* 1960. 62*pp.*

Covina, Calif., prepared a master street-tree plan which considers "every conceivable factor." The plan recommends ordinances, takes a stand on the sentimental and emotional subject of the large and healthy trees that constantly break sidewalks and curbs, and proposes citizen education on tree care.

## Suburban Business District Study

A COMPREHENSIVE PLAN REPORT FOR THE CENTRAL BUSINESS DISTRICT. *Stanton and Rockwell Planning Consultants, 23 North Wacker Dr., Chicago 6, Ill.* 1960. 127*pp.* $6.

Suburban CBDs (central business districts) run into as much trouble and suffer as much decline as those in central city CBDs, particularly if they are older, well-established communities. Chicago Heights has one with the usual clutter and downgrade characteristics. However this study shows that the district has a $26,000,000

*(Continued on page 184)*

THE ORIGINAL AND WORLD LEADER IN INSECTICIDAL FOG GENERATORS

TIFA

TODD INSECTICIDAL APPLICATOR

EXTRA VERSATILITY
EXTRA ECONOMY ON GASOLINE OR LIQUID PETROLEUM GAS

FOG OR MIST
**DEADLIEST TO PESTS**

True clean all-enveloping TIFA fog gets the kill wherever insects swarm. TIFA can also produce a useful fog mist or spray. Best by test for over 17 years, TIFA gives complete space control at lowest operating and maintenance cost in 7000 communities throughout the world. Peak performance with both new and older type insecticides . . . one-man operation. New Starter-Generator (optional) for immediate starts, easily attached to new and existing TIFA units. Listed by Underwriters' Laboratories, Chicago.

Write for illustrated folder and official comments.

**TODD** SHIPYARDS CORPORATION
PRODUCTS DIVISION
SALES AND SERVICE DEPARTMENTS:
Columbia and Halleck Streets, Brooklyn 31, N. Y.
PLANT, SALES AND SERVICE: Green's Bayou, Houston 15, Tex.

Sales and Service Agencies throughout the Western Hemisphere

**Build extra good will on fire calls!**

**MINIMIZE SMOKE AND WATER DAMAGE with**

**FULTON SHUREDRY GREEN-BAK SALVAGE COVERS!**

You'll create a better public image of your fire department when you use Fulton Salvage Covers. Because these quality covers give property maximum protection from smoke and water damage, they signify an extra measure of care on the part of your firemen. This results in greater good will, support for your department and in valuable community relations.

*Features of Fulton Salvage Covers:* FINEST QUALITY TREATED DUCK • LIGHT, PLIABLE AND MILDEW RESISTANT • PRESSURE IMPREGNATED BY FULTON'S EXCLUSIVE "DRY-TREATMENT" • WATERPROOFED SEAMS • EASY TO HANDLE IN ANY TEMPERATURE

Fulton Salvage Covers meet the specifications of the National Board of Fire Underwriters, and are approved by Associated Factory Mutual Fire Insurance Companies.

*Contact your fire equipment dealer or*

**Fulton** COTTON MILLS

FULTON MANUFACTURES A COMPLETE LINE OF NYLON SALVAGE COVERS

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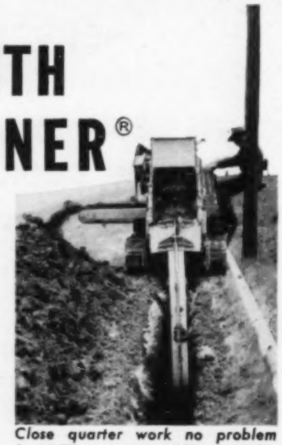
lower your costs on small sized trenching assignments

DIG IN FAST WITH A 77 TRENCHLINER®

Small main and service line work steps ahead quickly when you dig in with the Parsons® 77. It's not much wider than a yardstick, yet can cut 6″ to 18″ trench down to 5-ft. depths at speeds up to 21 lineal feet per minute.

The 77 has 32 hi-lo digging selections — a speed for most profitable penetration in any ground. It's easy to use, move, and maintain. See your nearby Parsons distributor for details or write for bulletin. P116



*Close quarter work no problem here! 77 can move within a track's width of side obstructions — speed your trenching in closest quarters. Removable seat.*

PARSONS COMPANY
NEWTON, IOWA

A Division of KOEHRING Company

*(Continued from page 183)*

annual potential in business if it takes certain steps to improve it. Among these are:

- improvements to bus terminal facilities, permitting more people to arrive conveniently by mass transportation.
- revision of metered curb parking policies to insure better reuse of curb facilities.
- elimination of curb parking at principal intersections and other key areas to improve traffic conditions.
- improvement to certain key streets to remove traffic bottlenecks.
- overcoming parking deficiencies and improving the appearance of parking lots.

## Compact Fire-Prevention Code

FIRE PREVENTION CODE; ABBREVIATED EDITION —*National Board of Fire Underwriters, 85 John St., New York 38, N. Y. (for Eastern subscribers); 222 West Adams St., Chicago 6, Ill. (for Middle Western subscribers); 465 California St., San Francisco 4, Calif. (for subscribers west of the Rockies).* 1960. 56*pp.*

The fire-prevention code, already adopted by more than 1,600 communities throughout the nation, is now available in a new abbreviated edition. The new edition covers the most important fundamentals on fire prevention and includes new provisions governing hazardous conditions that have become increasingly important in recent years.

## Zoning Humanized

THE ATLANTA ZONING ORDINANCE AND YOU—*Atlanta Planning Department, City Hall, Atlanta, Ga.* 1960. 44*pp.*

One of the most enjoyable explanations of how a local ordinance operates that we can recall. It would be a good idea if every city made one like this, "plagiarizing" even the smart little cartoons. We doubt that the Atlanta Joint Planning Board would object.

## Wage Scales

WAGES, SALARIES AND FRINGE BENEFITS IN PENNSYLVANIA CITIES — *The Pennsylvania League of Cities, Local Government Center, 2415 North Front Street, Harrisburg, Pa.* 1960. 30*pp.* $1.

If you want to know what Pennsylvania cities are paying their employees, this is the book that will tell you.

## Lakefront Facilities

LAKEFRONT STUDY—*Regional Planning Commission, 415 The Arcade, Cleveland 14, Ohio.* 1960. 53*pp.* 50 *cents.*

A workmanlike report on the availability of beachfront properties for public use in the Cleveland area. It inventories existing facilities and predicts future demands for the years 1970 and 2000.

## Research

RESEARCH FUNCTION OF UNIVERSITY BUREAUS OF INSTITUTES FOR GOVERNMENT-RELATED RESEARCH—*Edited by Dwight Waldo. Bureau of Public Administration, University of California, Berkeley, Calif.* 1960. 222*pp.*

One can count probably 50 governmental research bureaus of some type, sponsored by various colleges and universities. Yet probably no more than a half dozen do anything resembling an outstanding job. Some states have three or four of such groups and some universities have two.

This text reports a conference exploring the way to upgrade the quality of research performed by these groups and the conferees report rather muddy going. Nevertheless, the discussion suggesting research in politics is bound to stir interest in anyone with an inquiring mind. The analysis of metropolitan areas questions the widely held belief that a small local government is more democratic than a large and asks for some practical re-examination of what constitutes home rule. In the chapter devoted to community decisions, the discussion of the council-manager form of government is interesting.

All-in-all, an interesting and stimulating book for the man who is making local government his career.

## Los Angeles CBD

LOS ANGELES CENTROPOLIS: 1980—*By John E. Roberts. City Planning Commission, City Hall, Los Angeles, Calif.* 1960. 52*pp.* $5.

Los Angeles, often referred to as a group of suburbs hunting for a city, does indeed have a central business district worth a little study. The report shows it on the decline, needing rehabilitation. This report shows other cities how to analyze their own downtown areas so that they can get a little economic shot in the arm.

## Intermunicipal Cooperation

MUNICIPAL COOPERATION, A DIGEST OF NEW YORK STATE LAW. *Joint Legislative Committee on Metropolitan Areas Study, Eighth Floor, Onondaga County Savings Bank Bldg., Syracuse* 2, *N. Y.* 1960. 27*pp.*

The State of New York lists the legal support for the many municipal services that urban governments in this state can provide cooperatively. These areas include: civil service administration; conservation, flood control and drainage; fire protection; health and hospitals; highways and bridges; utilities, libraries, planning; police protection; public welfare; refuse disposal; sewerage; taxation and assessment; water supply.

## Urban Dispersal

VOL. II—THE NATURE AND CONTROL OF URBAN DISPERSAL. *Public Administration Extension, University of California, Berkeley, Calif.* 1960. 130*pp.* $2.

The second volume of an interesting series on planning for metropolitan areas. To the practicing city official, the two sections on urban growth and local government, services and costs and revenues, make it worth the purchase price. The authors argue that local government costs tend to rise when a city is less than 50,000 and more than 500,000. Other conclusions are:

- lightly populated residential areas need not be expensive to service.
- tax rates do not frighten away industry (some argument reported on this).

### ADMINISTRATION AND GOVERNMENT

PENNSYLVANIA — Proceedings, First Annual Western Pennsylvania Area Community Growth Conference. Institute of Local Government, Graduate School of Public and International Affairs, University of Pittsburgh, Pittsburgh, Pa. 1960. 90pp. $3.

### AIR POLLUTION

GENERAL—Publications; Section 1, Air Pollution. Librarian of the Public Health Service, Robert A. Taft Sanitary Engineering Center, 4676 Columbia Pkwy., Cincinnati 26, Ohio. 1960. 24 pp.

*(Continued on page 187)*

NOW... FOUR BACKHOE-LOADERS

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*Shawnee*

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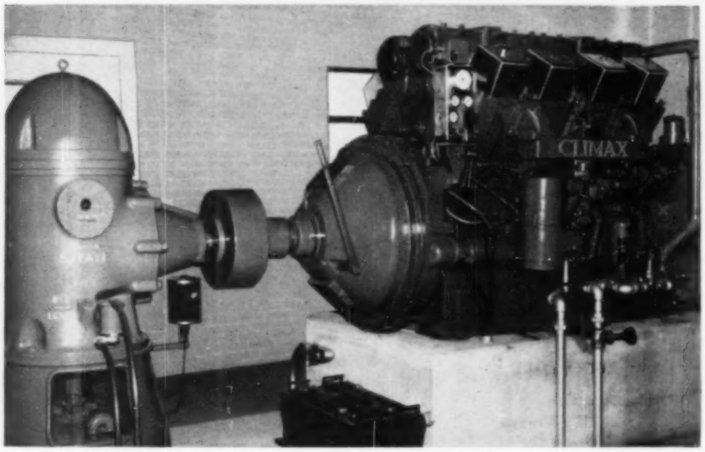
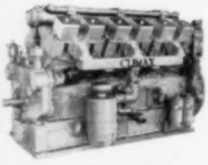
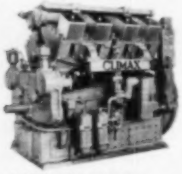
# CLIMAX MUNICIPAL ENGINES

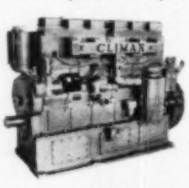




V-125—12 cylinder,
605 max. hp. at 1200 rpm.
V-122—12 cylinder,
520 max. hp. at 1200 rpm.



V-85—8 cylinder,
390 max. hp. at 1200 rpm.
V-80—8 cylinder,
340 max. hp. at 1200 rpm.



K-75—6 cylinder,
304 max. hp. at 1200 rpm.
K-67—6 cylinder,
265 max. hp. at 1200 rpm.

**IN SEWAGE TREATMENT PLANTS** everywhere Climax engines power sewage pumps, blowers and generators. Burning sludge gas, and utilizing heat from jacket water and engine exhaust gas to heat digesters and buildings, they effect big savings. Capable of operation on natural gas, butane, gasoline, or any combination. For continuous duty service in sewage plants—seven rugged Climax models: 12, 8, 6 cylinders.

**IN WATER WORKS** over 100 cities depend on Climax engines . . . for prime power, or to take over when normal power for pumps is interrupted or fails . . . and to drive pumps during peak loads as supplementary power. Burning natural gas, butane or gasoline, Climax Water Works engines range in size to 600 hp.

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| BASIC MAX. ENGINE HP (Natural Gas and Gasoline) ① | | | | | 600 | 700 | 800 | 900 | 1000 | 1100 | 1200 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MODEL | No. of Cyls. | Bore & Stroke | Displ. | Torque @ RPM | BRAKE HORSEPOWER AT SPEEDS INDICATED | | | | | | |
| R-165 | 6 | 6⅛ x 7 | 1238 | 930 @ 750 | 105 | 123 | 140 | 156 | 170 | 183 | 192 |
| K-67 | 6 | 7 x 7 | 1616 | 1240 @ 805 | 140 | 165 | 188 | 210 | 230 | 248 | 265 |
| K-75 | 6 | 7½ x 7 | 1855 | 1410 @ 800 | 160 | 186 | 214 | 240 | 265 | 286 | 304 |
| V-80 | 8 | 7 x 7 | 2155 | 1610 @ 850 | 178 | 210 | 241 | 272 | 300 | 323 | 340 |
| V-85 | 8 | 7½ x 7 | 2474 | 1860 @ 900 | 207 | 249 | 285 | 317 | 345 | 370 | 390 |
| V-122 | 12 | 7 x 7 | 3232 | 2440 @ 900 | 280 | 330 | 380 | 420 | 460 | 490 | 520 |
| V-125 | 12 | 7½ x 7 | 3711 | 2880 @ 850 | 310 | 370 | 435 | 490 | 540 | 580 | 605 |

① Basic engine includes ignition, maximum carburetion, and water pump. Ratings indicate maximum horsepower.

**CLIMAX ENGINE MANUFACTURING CO. • FACTORY—CLINTON, IOWA**
**DIVISION OF WAUKESHA MOTOR COMPANY**

*(Continued from page 185)*

HAMILTON, OHIO—Air Pollution in Hamilton. Librarian, PHS, Robert A. Taft Sanitary Engineering Center, 4676 Columbia Pkwy., Cincinnati 26, Ohio. 1960. 12 pp.

### FINANCE AND TAXATION

WISCONSIN—Proceedings, Institute for Municipal Assessors, 1960. League of Wisconsin Municipalities, 30 East Johnson St., Madison 3, Wis. 1960. 111pp. $3.

### LEGAL

WASHINGTON—Proceedings of the Attorneys' Conference, Held in Conjunction with Washington State Bar Association Annual Meeting. Association of Washington Cities, 250 Smith Hall, University of Washington, Seattle 5, Wash. 1960. 54pp. $1. Proceedings of the fourth annual meeting of the Washington State Association of Municipal Attorneys, concerning municipal legal matters.

### PARKS

GENERAL—A Guide for Fertilizing Shade and Ornamental Trees. National Arborist Association, Inc., P. O. Box 426, Wooster, Ohio. 1960. 3pp.

### PLANNING, ZONING, HOUSING

MARION COUNTY, IND.—Lockerbie Fair: A Problem, An Area, An Answer. The Metropolitan Planning Department of Marion County, Room 405, City Hall, Indianapolis, Ind. 1960. 27pp.

MEQUON, WIS.—General Plan for Community Development. Nelson & Associates, 1733 North Farwell Ave., Milwaukee 2, Wis. 1960. 149pp. $6.

PEQUANNOCK TOWNSHIP, N. J.—Master Plan. Herbert H. Smith Associates, 1241 Parkway Ave., P. O. Box 206, West Trenton, N. J. 1960. 35pp. $1.

RICHMOND, CALIF.—Program for Community Improvement. Office of the City Manager, Richmond, Calif. 1960. 19pp.

TACOMA, WASH.—Civic Auditorium Report. City Planning Commission, Municipal Building, Tacoma, Wash. 1960. 70 pp. $1.

WASHINGTON, D. C.—A Report and Sketch Plan for the Revitalization of Downtown Washington, D. C. Downtown Progress, National Capital Downtown Committee, Inc., 711 14th St., N. W., Washington 5, D. C. 1961. 28pp. $3.

WASHINGTON—Traffic Ordinance for Washington Cities. Association of Washington Cities, 250 Smith Hall, University of Washington, Seattle 5, Wash. 1960. 132 pp.

### UNUSUAL ANNUAL REPORTS

BUFFALO, N. Y.—Annual Report. Buffalo Sewer Authority, City Hall, Buffalo, N. Y. 1960. 91pp.

GARDEN CITY, N. Y.—Annual Report 1960. Office of the Mayor, Village Hall, Garden City, L. I., N. Y., 1960. 40pp.

HOLLYWOOD, FLA.—Annual Report. Office of the City Manager, City Hall, Hollywood, Fla. 1960. 26pp.

LOS ANGELES, CALIF.—Water and Power, 1959-1960. Board of Water and Power Commissioners, City of Los Angeles, Calif. 1960. 33pp.

NEW YORK, NEW JERSEY, CONNECTICUT—Annual Report 1960. Interstate Sanitation Commission, 10 Columbus Circle, New York 19, N. Y. 1960. 35pp.

### URBAN RENEWAL

PHILADELPHIA, PA.—The Usefulness of Philadelphia's Industrial Plant: An Approach to Industrial Renewal. Philadelphia City Planning Commission, City Hall, Philadelphia, Pa. 1960. 123pp.

### WEED CONTROL

COLORADO—An Analysis of Weed Ordinances. Colorado Municipal League, Boulder, Colo. 1961. 9pp. $2.

### REPRESENTATIVE MUNICIPAL BOND ISSUES
### from February 7th, 1961, to March 7th, 1961

| *Date of Issue* | *Locality* | *Amount in $1000* | *Purpose* | *Term Yrs. to Maturity* | *Rate of Int* | *Yield %* |
|---|---|---|---|---|---|---|
| 2/ 7/61 | Roseville, Mich. | 2 000 | Building and Site | .... | .... | 3.88 |
| 2/11/61 | Denver, Colo. (city and county) | 15,000 | General Obligation, Water | 29¼ | .... | .... |
| 2/14/61 | Meridian Tp., Mich. | 1,500 | General Obligation, Sewer | .... | 4.25 | 4.24 |
| 2/15/61 | Vallejo, Calif., Redevelopment Agency | 1,240 | Mariana Vista Project Tax Allocation | 30 | 4.37 | 4.37 |
| 2/15/61 | Baltimore, Md. | 850 | Recreation and Park Building (gen. obl.) | 9⅚ | 3.50 | 3.12 |
| 2/15/61 | Jackson, Miss. | 2,000 | Public Improvement | Callable | .... | 3 61 |
| 2/15/61 | Providence, R. I. | 2,500 | Redevelopment, Slum Clearance | 13½ | 3.30 | .... |
| 2/16/61 | Cuyahoga Co., Ohio | 3,000 | Roads, Bridges and Grade Separations (gen. obl.) | 8¼ | 3.00 | 2.88 |
| 2/16/61 | Maumee, Ohio | 125 | Street, Sewer (special assessment improvement) | 5⅔ | 3.00 | .... |
| 2/16/61 | Harrison Co., Miss. | 3,000 | Harbor and Seaport | Callable | .... | 3.66 |
| 2/16/61 | Johnstown Municipal Authority, Pa. | 5,000 | Sewer, Revenue | .... | .... | 3.97 |
| 2/23/61 | Erie Co., N. Y. | 6,370 | General Improvement | 6½ | 2.60 | 2.54 |
| 2/28/61 | Tucson, Ariz. | 5,000 | Water, Revenue | .... | .... | 3.75 |
| 2/28/61 | Los Angeles Co., Calif., Malibu Waterworks Dist. No. 29 | 3,000 | Water Election | 27 | 4.25 | 4.24 |
| 2/28/61 | Fort Pierce, Fla. | 5,800 | Electric, Water, Revenue | .... | .... | 3.89 |
| 2/28/61 | Columbia, S. C. | 2,500 | Waterworks Sewer, Revenue | .. | .... | 3.34 |
| 3/ 1/61 | Union Co., N. J. | 308 | Park (gen. obl.) | 8⅙ | 2.70 | .... |
| 3/ 2/61 | Woonsocket, R. I. | 125 | Fire Apparatus Loan Act | 5 | 3.40 | .... |
| 3/ 6/61 | Lee Co., Miss. | 1,000 | Road and Bridge | .... | .... | 3.47 |
| 3/ 7/61 | Palmyra, N. Y. | 1,243 | Sanitary Sewer System | 16⅙ | 3.60 | .... |

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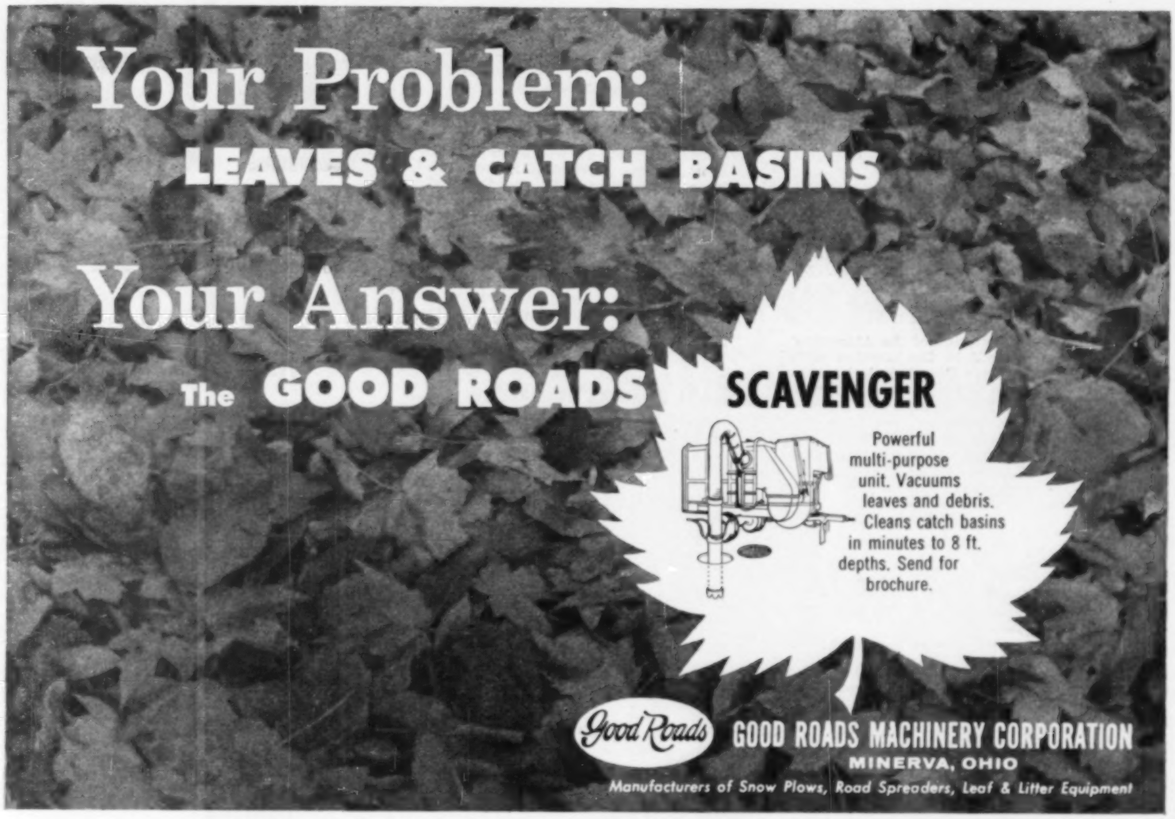

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Photos show how big revolving cutting wheel rips stump to chips . . . down to 10" below the ground. Dirt is replaced, chips removed and area is ready for seed or sod.

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## Glass Fibre Parshall Flume

Corrosion and chemical resistant qualities of this one piece, complete length, integrally molded flume make it ideal for installation in sewage plants where accurate measurement is required. Longitudinal as well as transverse reinforcing struts give the flume rigidity and strength so that it may be used unsupported if necessary. Molding techniques are said to provide dimensional accuracy not encountered with concrete structures.

This polyester resin bonded flume is available in sizes ranging from 3-inch up to and including 24-inch throat widths. Light weight permits easy handling. For additional information, write SIMPLEX VALVE & METER CO., 7 E. ORANGE ST., LANCASTER, PA.

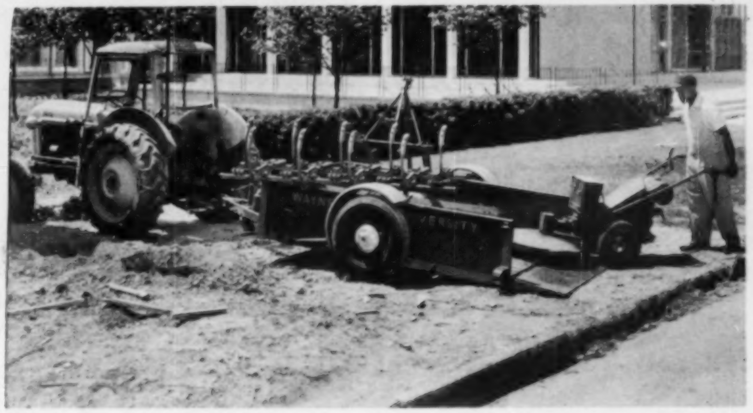
## Redesigned Motor Scraper

Allis-Chalmers has redesigned and restyled the TS-160 motor scraper, smallest in the company's all-hydraulic line, to increase the unit's capacity to 8½ struck and 11 cubic yards heaped and the payload to 13 tons.

Power source is an A-C 155-hp supercharged diesel engine and it maintains a favorable 18.2 horsepower-to-struck yardage ratio.

In addition to all-hydraulic operation, the TS-160 features full power steering, high-speed spreading made possible by a forced ejection system, and automatic control of the amount of torque delivered to each drive wheel in relation to traction requirements.

The scraper can negotiate a 90-degree, non-stop turn in less than 25 feet. For additional information, write ALLIS-CHALMERS MFG. CO., MILWAUKEE 1, WIS.



## Elevating Cargo Trailer

Magline Inc. has introduced an elevating trailer for all-purpose cargo handling that lifts its own load in 40 seconds. The Trailevator's hydraulically operated bed lowers to receive load at ground level, then lifts and locks into hauling position.

A patented load-leveling device compensates for nonuniform load distribution, assuring level elevation or descent. Independent wheel suspension and dual leaf-type springs provide shock-free over-the-road cargo hauling. Tailgate forms heavy-duty loading ramp and box closure.

According to the manufacturer, the trailer needn't be detached from towing vehicle for loading or unleading. Bed will hold for loading at any level, from ground to hauling position. Rated at 2000 pounds capacity, the all-steel unit weighs only 960 pounds.

For additional information, write MAGLINE, INC., TRAILEVATOR DIVISION, PINCONNING, MICH.

## New Asphalt Highway Maintenance Machine

Four operations are necessary to repave an asphalt highway: heating, leveling, relaying and compacting. The Cutler Repaver does all.

Heating is accomplished in an insulated lined grid chamber using four air atomizing 10-gallon per hour diesel oil burners, which use direct, radiant, and convected heat to accomplish the heating assignments. A nickel iron grid roll channels heat to the pavement by radiation and direct contact. This 4000-pound unit kneads the loose asphalt and thoroughly vulcanizes it to the existing mat.

Leveling is carried out by using a conventional grader blade actuated by hydraulic cylinders working against mechanical stops.

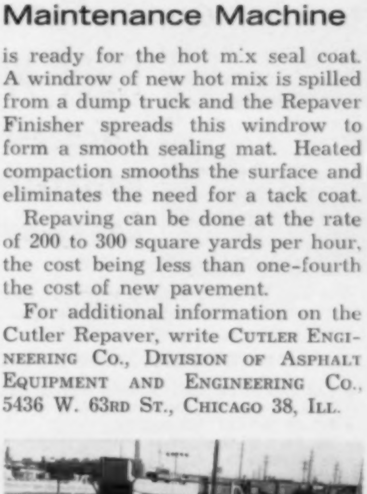
The heavy compaction rollers of the 12-ton Repaver are heated by individual burners to insure the right temperature for compaction.

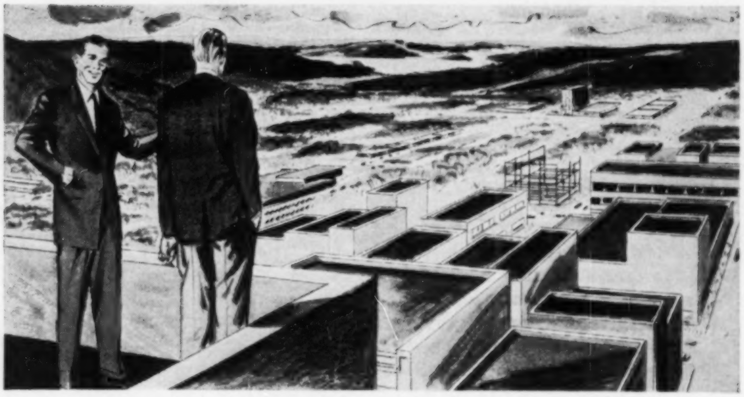
In operation the Repaver works back and forth over an area heating, leveling and compacting. All of the original mix is used to build a good level base.

After leveling, the hot level area is ready for the hot mix seal coat. A windrow of new hot mix is spilled from a dump truck and the Repaver Finisher spreads this windrow to form a smooth sealing mat. Heated compaction smooths the surface and eliminates the need for a tack coat.

Repaving can be done at the rate of 200 to 300 square yards per hour, the cost being less than one-fourth the cost of new pavement.

For additional information on the Cutler Repaver, write CUTLER ENGINEERING CO., DIVISION OF ASPHALT EQUIPMENT AND ENGINEERING CO., 5436 W. 63RD ST., CHICAGO 38, ILL.





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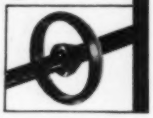

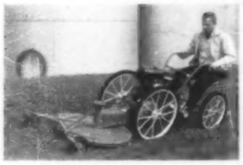

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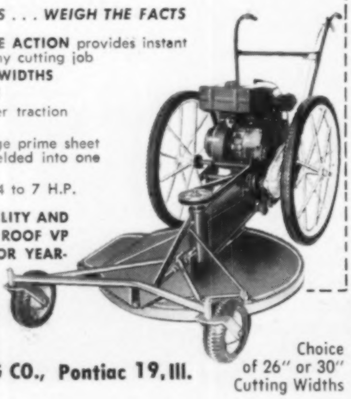

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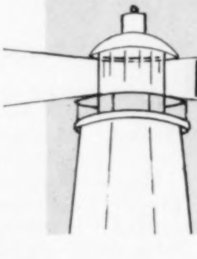

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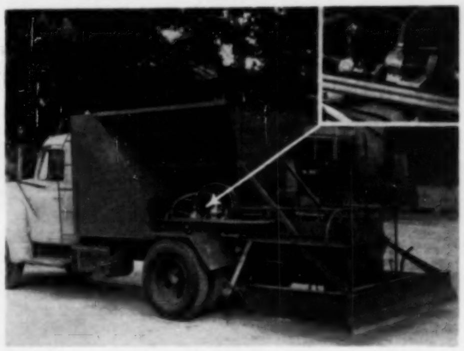

*Two and one-half hours after the street surface has been rejuvenated with the Young Co. slurry machine it is hard enough to withstand the impact of a jet plane landing. Note detail of the Deming internal gear rotary pump.*

## Speeds Resurfacing of Streets

A new truck-mounted slurry machine permits resealing and rejuvenation of streets at the rate of 31,860 feet per hour. It is a complete unit with balanced storage for emulsified asphalt, water and aggregates. Components are stored in separate compartments, each containing a volumetric calibration for measuring the mixture-fed materials.

The emulsion ejection uses a metering pump locked in ratio with a belt feeder equipped with an adjustable gate, thereby allowing the operator to control the asphalt content in the mix. The water supply is variable and it is controlled by watching the consistency of the mix.

An integral part of the slurry machine is a Deming 1½ L Internal Gear Rotary Pump, manufactured by THE DEMING CO., SALEM, OHIO. Operating at 200 rpm, the pump dispenses the "water-like" emulsion in a uniform mixture.

The spreader is mounted under the mixer. It can be lifted for travel by a hand-operated winch and can be easily and quickly removed with four chain hooks.

Any 2 or 2½-ton short wheelbase truck chassis will accommodate the slurry machine. For full details, write THE YOUNG CO., WACO, TEXAS.

## New Boom for Roadside Weed and Brush Control Spraying

John Bean's new Contour-Matic Boom affords complete coverage of roadside terrain, and can be ordered with 10-foot or 15-foot truck bed, for mounting on 1½-ton trucks or larger. Twenty-four foot Model 85-39 covers 3 acres per running mile with each pass; 33-foot Model 85-40 covers 4 acres per running mile with each pass.

The operator controls each boom section from his position on the truck bed. Separate hydraulic cylinders govern the movement of each section. Individual spray controls for each boom section save spray material.

The boom adjusts to a variety of positions. Section joints are equipped with special nozzles which turn on automatically when the boom section is raised. This insures coverage in corners of ditch bottoms and on angles of slopes.

A safety load valve in the master swing cylinder of the boom permits it to swing back toward the truck

*(Continued on page 193)*

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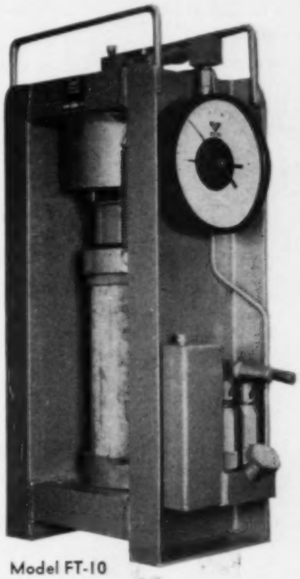

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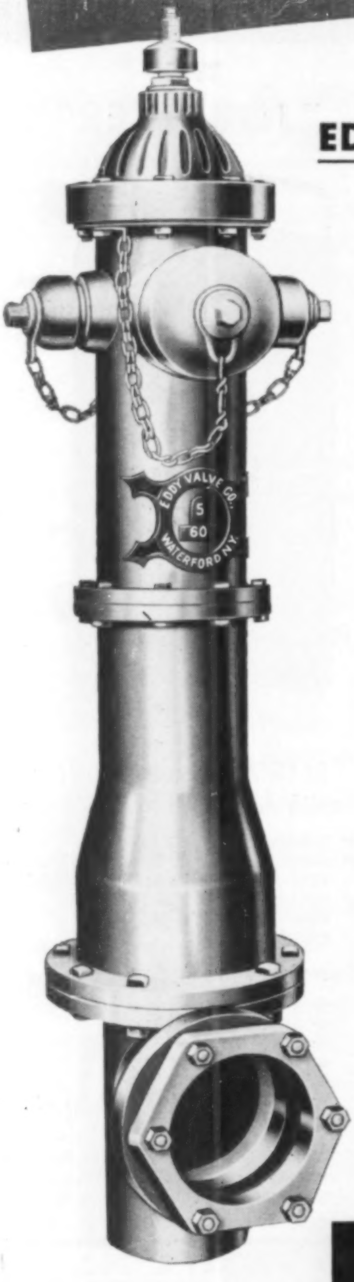
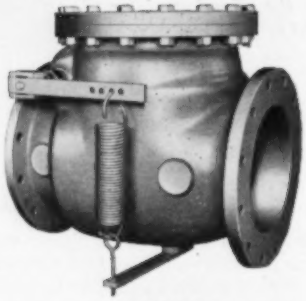
Cable: Forney's New Castle

# EDDY New Improved Products Meet Modern Needs


EDDY VALVE CO.
5
60
WATERFORD N.Y.

## EDDY Fire Hydrant

- **Improved, streamlined, modernized**
- **Optional break-flange**
- **Large diameter barrel**
- **New self-sealing main valve packing**
- **Requires no lubrication**
- **Opens *with* pressure**
- **Closes *against* pressure**
- **Underwriters' listed**
- **Standardized, interchangeable parts**

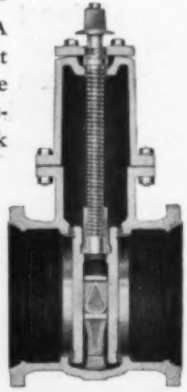


## EDDY Check Valves

Completely new designs of horizontal swing check valves are available in sizes from 4 through 12 inches. They operate dependably in either vertical or horizontal positions and incorporate construction features which provide unusual flexibility of operation. These valves may be converted in the field from plain to single- or double-lever operation to meet changing requirements. Other check valves up to 24 inches.

## EDDY Gate Valves

In addition to the regular line of EDDY Taper Seat AWWA gate valves, EDDY now offers a newly designed parallel seat AWWA gate valve in sizes through 12 inches. This valve has been specifically engineered to provide long, trouble-free service. Working parts are designed with heavy, thick section and large seating surfaces for dependable operation and improved wearing qualities. The valve has two-point, free-floating wedging for minimum friction and maximum operating ease. Other AWWA gate valves are available through 48 inches.



*Whatever your waterworks requirements, it will pay you to have full information on the complete* EDDY *line of valves and hydrants.*

**EDDY VALVE COMPANY**
A Subsidiary of James B. Clow & Sons, Inc.

**WATERFORD**
**NEW YORK**

*(Continued from page 191)*

side if it hits an obstruction. For additional information, write John Bean, Division of Food Machinery and Chemical Corp., Lansing 4, Mich.

## Earth Mover Clears Snow

***A conventional earth-moving unit, a Model 304 Trojan tractor shovel, manufactured by The Yale & Towne Mfg. Co., Trojan Division, Batavia, N. Y., clears the passenger terminal at American Airlines, Idlewild Airport, of snow after a crippling 17-inch snowfall in New York. The 3-cubic yard rated capacity Trojan required only 4 passes to load each Mack diesel truck with 16-yards of snow. Eleven-foot build-up sidebords enable the 12-yard capacity truck to hold the additional 4 yards of snow.***

## Aerial Boom

A new aerial device "squirts" a workman 40 feet into the air. It rotates 360° in either direction; vertical operating range is 102°. Fiberglass bucket, yoke and boom can withstand a 73,000-volt a.c. bucket-to-ground test. The fiberglass boom, by means of a double acting hydraulic cylinder, extends 10 feet 7 inches from the end of the main boom and can be stopped for work at any point in its travel.

Hydraulic controls are located on the inboard edge of the bucket and on the superstructure. The unit can also be operated from inside the cab with the solenoid-controlled override. Bucket remains level at all times.

For additional information on the Series 8000 Squirt Boom, write Holan Corp., 4100 W. 150th St., Cleveland 35, Ohio.

## New Recording Feeder

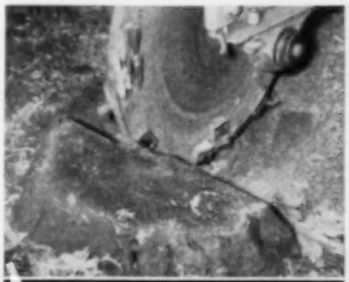
A proven volumetric chemical feeder, newly adapted for loss-of-weight recording, controls dry-chemical flow precisely and provides permanent records of feeder operation.

Delivery is at rates between 0.0045 and 2.8 cubic feet per hour. A screw-type feed section prevents flooding. Built-in diaphragm agita-

*(Continued on page 195)*

Is your administration stumped—by stumps?

UNSIGHTLY STUMPS . . .



CHEWED UP AND OUT...

BY DAVEY STUMP-EATER

**No need to be!**

Quickly, economically, a Davey power-driven Stump-eater chews stumps off to below ground level. ZZZZZZZZZ . . . and the ground's ready for resodding!

Neat? Of course. It's a typical example of Davey Tree Service, done by specially engineered equipment and men with special tree-care knowhow.

Whatever kind of tree service you need done for your community's trees, it's best done by Davey's trained, experienced men, with long-proved techniques and the finest modern equipment.

Shade tree pruning • Tree trimming for wire clearance • Tree removals • Stump removals • Complete spraying and feeding service • Chemical weed and brush control • Tree planting • All community tree maintenance

*Write direct to F. F. Lofgren, Sales Manager*

DAVEY TREE EXPERT CO.

DAVEY TREE EXPERT CO.
Kent 16, Ohio
MARTIN L. DAVEY, JR.
President

THE OLDEST AND LARGEST TREE SAVING SERVICE IN THE WORLD

# FRANKLIN FABRICS UNIFORMS

373

Range 373 has symbolized the top quality Police and Fire Department Uniform Fabrics for over 25 years.

It is made in all weights for all climates.

**Stock dyed**
**2 ply**
**Fast Colors**
**Uniformity of Shade**

Corresponding qualities in worsted whipcords and elastiques; gabardines and tropicals in either 100% worsted or worsted/dacron blends.

TO BE SURE, SPECIFY

**FRANKLIN WORSTEDS**

for additional information write to—
David E. Singer, Sales Agent
**FRANKLIN WORSTED COMPANY**
40 East 34th St., New York 16, N. Y.

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# ESSICK
## VIBRATING COMPACTORS

ESSICK VR-28-W PATCHING ASPHALT IN GARDEN GROVE, CALIF.

## "MAINTENANCE PRODUCTION TRIPLED... ...COSTS DECREASED 80%"

**SEWARD H. DART, STREET MAINTENANCE SUPERINTENDENT–SHOWN WATCHING HIS 28" ESSICK VIBRATING COMPACTOR IN ACTION—STATES:**

"Irrigation water tracked into the intersections and gutter aprons in Garden Grove, constantly eroded the asphalt and made maintenance a full time problem. As a result, our gutter and intersection patching required frequent reworking, and our costs were high.

"After a demonstration of the 28" Essick Vibrating Compactor, we knew we had found the answer. It was self-propelled, hooked on the tail gate of a dump truck, and produced compaction equivalent to an 8 ton roller on asphalt. Its high frequency vibration compacts an asphalt patch that is completely dense—that can be opened immediately to traffic without any marking or damage to the asphalt.

"Now with our patching unit consisting of the 1½ ton dump truck, an Essick 120 gallon Truck Mounted Emulsion Unit, a propane torch, and the Essick VR-28-W Vibrating Compactor, the patch life has been tremendously extended, our maintenance production has tripled, and our costs have decreased 80%.

"The Essick VR-28 really solved the patch problem for us."

**SELF PROPELLED—MANEUVERABLE—PORTABLE**

Essick High Frequency Vibrating Compactors are constantly exceeding the densities and specifications performed by other compaction methods, while creating new standards of compaction for all types of fills, sub base, base materials, and asphalt.

***CALL YOUR ESSICK DEALER FOR A DEMONSTRATION***

9 Models of Vibrating Compactors from 13" to 72" Widths

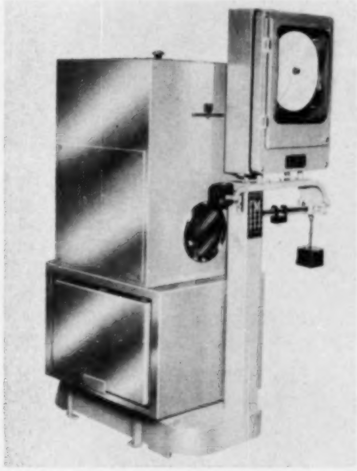
*Also 14 models of Tandem Rollers from ½ to 14 Tons*

**ESSICK MANUFACTURING COMPANY**

1950 Santa Fe Avenue
Los Angeles 21, California

850 Woodruff Lane
Elizabeth, New Jersey

Affiliated with THE T. L. SMITH COMPANY, Milwaukee, Wisconsin



***W&T's Series A-690 feeder with loss-of-weight recorder gives accurate delivery, convenient operation, thorough mixing.***

*(Continued from page 193)*

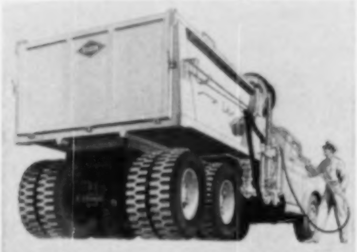
tors prevent arching of material in the hopper.

An adjustable knob controls feed rate; a flashing light indicates proper operation. The amount of chemical fed during any desired period is read from 24-hour or 7-day charts. A direct reading register shows the amount of material remaining in the hopper at any time.

For additional information, write Wallace & Tiernan Inc., 25 Main St., Belleville 9, N. J.

## Catch Basin, Underground Cleaner

Major feature of the Model 2-M Elgin Eductor is its 2,000-gallon tank, which will increase its *material* capacity 100% in doing catch basin and underground cleaning work. The Elgin Corp., 22 W. Adams St., Chicago 6, Ill., reports that municipal and utility owners will find that the new tank will also increase the Eductor's capacity for street flushing, fire-fighting, sewer back flushing and tree insect spraying by 60%.

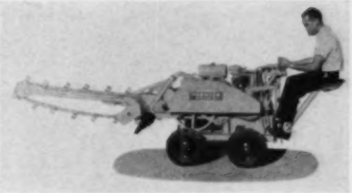


## Smallest Vermeer Ditcher

Vermeer Mfg. Co., of Pella, Ia., announces distribution of the W-1 Pow-R-Ditcher, which digs up to 8 feet in width and will be used primarily for laying small service and electric lines.

The W-1 features all-hydraulic ground travel, regardless of digging speeds or transport speeds. It has

*(Continued on page 197)*



***W-1 Pow-R-Ditcher***

*packaged for savings*

**TRICROME® RE-RING SETS** are self-conforming and pre-lapped for quick seating and light-tight fit. Three of the four rings per piston are full-chromed.

**NEW PARTS KITS** factory-engineered for WISCONSIN ENGINES

They're brand new — and packaged for safe, easy handling and big savings. Above all, the Wisconsin kits are factory-engineered for Wisconsin Engines only.

Our TriCrome® sets enable you to re-ring moderately worn, tapered, or out-of-round cylinders *for one-third the cost of reboring.* And now, you can also buy them in .010", .020", and .030" oversizes for the same price.

The Stellite valve, solid seat, and valve rotator conversion kit saves you the cost *of two to four ordinary valve jobs* for only $12.85 per valve . . . and our high-temperature safety switch *automatically* protects your Wisconsin Engine against burn out through overheating. The cost, $5.95.

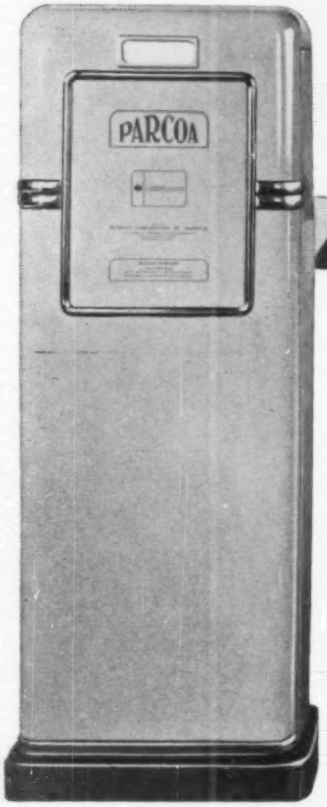
Complete kits assure uniform like-new performance. And they cost less than if you bought the parts individually. Ask your Wisconsin Engine Service Station about them — and prices. Or send for Parts Bulletin Form S-280. Write Dept. U-11.

**CHECK THESE TOO:**
- 4-Pack Oil Filter Cartridge, with gaskets
- Fuel Pumps
- Fuel Pump Repair Kits
- Carburetor Repair Kits
- Major Magneto Repair Kits
- Magneto Point and Condensor Kits
- Spray Paint Kit, with Decals
- Tools to make your job easier

*All are attractively priced and packaged!*

**WISCONSIN** MOTOR CORPORATION
MILWAUKEE 46, WISCONSIN
*World's Largest Builders of Heavy-Duty Air-Cooled Engines*

P-299



# DEPENDABLE PARCOA®

## SOLVES PARKING PROBLEMS GIVES YOU CONTROLLED OFF-STREET PARKING

Every month, more and more cars are appearing on America's highways adding to congestion and confusion. Parcoa offers the perfect solution . . . positive parking control—day and night . . . smoothly, safely, without interruption or overcrowding. PARCOA is an automatically controlled completely integrated parking system—not just a gate. You are offered a choice of controls . . . coded card key, coin operation, ticket issuing system or a time-dated ticket dispenser.

PARCOA will pay for itself many times over. 100% collection and ease of maintenance are assured. Before deciding on any parking control system investigate **PARCOA!**

PARCOA®
Johnson
SINCE 1909
Systems
PRODUCT OF BOWSER RESEARCH

**JOHNSON FARE BOX COMPANY**
*Subsidiary of BOWSER, INC.,*
4611 N. Ravenswood Ave. • Chicago 40, Ill. • LO 1-0217
*DISTRICT FIELD OFFICES:*
NEW YORK: 420 Lexington Ave., New York 17, N.Y.
ATLANTA: 741 Boulevard N.E., Atlanta 5, Georgia
CANADA: E. A. Horton Sales Ltd., 299 Bering Ave., Toronto 18, Ont.

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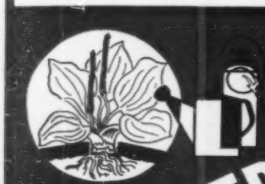
Where you want **nothing** to grow



## SS WEED-KILLER

Gets them *fast*
Gets them *all*
Keeps them off

Dolge SS WEED-KILLER is deadly to any weed it hits. After one thorough application of this potent soil-sterilant, unwanted plant life can't even get started through the growing season. . . . Safeguards parking lots, terraces, drives, walks, gutters, sand traps, courts, tracks and other areas against ruinous growth. . . . Reduces fire hazard by eliminating flammable vegetation close to industrial locations. . . . Finishes such hardy pests as poison ivy, wild honeysuckle, bindweed, crabgrass. . . . Cuts ground maintenance costs drastically. . . . One gallon of SS WEED-KILLER in solution treats 1250 square feet on the average.

*Write for free, up-to-the-minute booklet on weed control. See your Dolge Service Man*

*Dependable* DOLGE
WESTPORT, CONNECTICUT

---

# 16,410

## SCHOOLS, PARKS USE BUCKNER SPRINKLER SYSTEMS

Buckner sprinklers are providing better looking, easier to maintain turf for schools, sports fields, parks, building areas and golf courses all over the world. Keep your grounds and gardens Buckner beautiful with a low-cost Buckner sprinkler system.

Give turf that championship look. Install genuine Buckner sprinklers, your key to successful irrigation. See your local Buckner dealer for free estimates and preliminary irrigation plans.

Buckner, the pioneer manufacturer of golf course irrigation equipment, has distributors in all principal cities. Look in the yellow pages under "Sprinklers."

BUCKNER SPRINKLERS **MANUFACTURING CO., INC.**
P.O. Box 232, Fresno 8, California
WORLD WIDE DISTRIBUTION

*(Continued from page 195)*

4-wheel drive on 4.00 x 8 tires or is equipped with crawler tracks. Power source is a 9-hp Wisconsin AENL engine.

Special ejector paddles allow dirt to be deposited neatly on both sides of the ditch rather than thrown over a wide area. This enables faster and easier backfilling and cleaning of the area. The W-1 boom raises and lowers hydraulically.

## Landscape Seeder

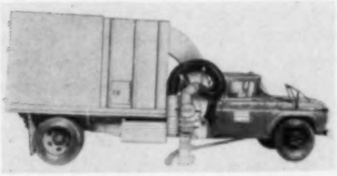
John Deere's new landscape seeder has a wide range of seeding settings and can plant at the light seeding rate of ½-pound to an acre for seeds such as red fescue. Its range extends as high as a 360-pound per acre setting for seeding grasses such as bermuda or some clovers. And it is able to spread granular fertilizers at a range anywhere between 100 to 800 pounds per acre.

In one operation the 265 Landscape Seeder finishes a prepared seed-bed, applies a 6-foot band of seed and fertilizer and then covers both. It operates at speeds up to 4½ miles per hour.

Adjustable, flexible tines smooth the surface and loosen crusted ground to make a well-prepared seedbed. The spiked-tooth roller

*(Continued on page 199)*

## Removes Leaves by Suction



Truck-mounted Leaf-Vac, a vacuum-operated blower, sucks up leaves and twigs from streets in a 5-foot swath without raising clouds of dust. A 12-foot flexible "snorkel" hose attachment removes matted leaves which accumulate in gutter drains and catch-basins, as well as piles of leaves from the curbside.

An auxiliary engine provides the power for the vacuum system. A controlled vapor spray is introduced into the suction stream to keep dust down while debris is being loaded and unloaded. Five-foot wide vacuum collection unit is handled from the truck cab.

Body capacities of 15, 18 and 21 yards are available. Twin ram hydraulic hoists provide fast, automatic dumping. For complete information write BAUGHMAN MFG. CO., INC., JERSEYVILLE, ILL.

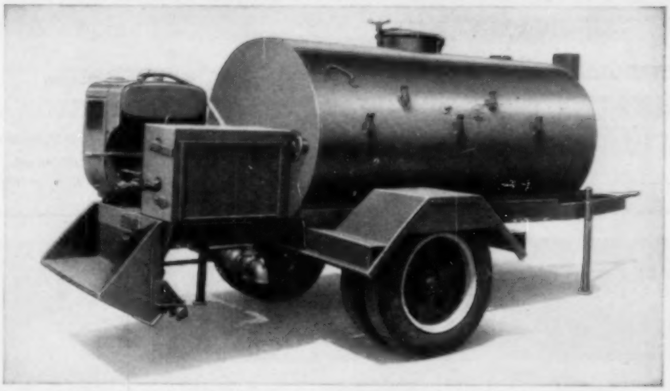
## Adapters Not Needed

A hub-end iron-body valve for use with concrete pressure pipe employs large O-ring gaskets to connect valve hubs to concrete pipe. Water and sewage works engineers will be particularly interested in this development because it eliminates the need of adapters when installing valves in concrete pipelines.

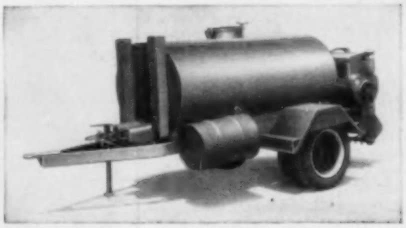
The hub-end valve is furnished in sizes of 12 inches through 42 inches and meets AWWA standards. Valve gaskets are the same as those used for the concrete pipeline joints. Circular No. 26 will supply complete information; write M & H VALVE AND FITTINGS CO., ANNISTON, ALA.

**STANDARD STEEL "S-J"**

***Maintenance Distributor***



**for VERSATILITY — EFFICIENCY — ECONOMY**



**HANDLES ASPHALT OR TAR—FOR PATCHING—SEALING—RESURFACING—CRACK FILLING—OR SURFACING DIRT OR GRAVEL ROADS**

**WORKS FAST—FAR AHEAD OF THE GRAVEL GANG**

Standard Steel S-J Maintenance Distributor, designed specifically for jobs where the use of bigger equipment is costly and impractical, can be moved rapidly from one location to another for patching, shoulder repair or construction of secondary roads . . . It is equipped with suck back spray bar which permits closing of the discharge valve and pulling back all surplus material in the spray bar and piping for quick cleaning . . . All piping and valves are flanged to permit easy repair or replacement . . . The draw off valve is on curb side for safety . . . and coilless self-generating burners are standard equipment as well as a Viking special asphalt pump which can be completely drained, eliminating the necessity for thawing when the unit is started cold. Write for complete details on Model S-J.

**OTHER PRODUCTS OF STANDARD STEEL**

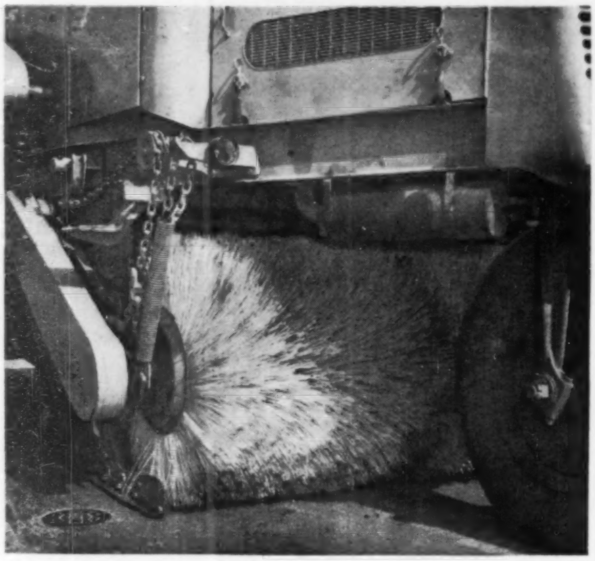
ASPHALT DISTRIBUTORS . BURNERS . . POWER AND TRACTION DRIVEN CONSTRUCTION BROOMS . . MAINTENANCE DISTRIBUTORS . . TAR KETTLES . . AGGREGATE SPREADERS STREET FLUSHERS PIPE LINE EQUIPMENT . . . SUPPLY TANKS SHELVING HARDWARE AND AGRICULTURAL EQUIPMENT

Built to the Highest Standard

**Standard Steel Works, Inc**, NORTH KANSAS CITY, MO.

SJ7

# BETTER STREET-SWEEPING AT LESS COST



## WITH *Wynene* 18

## POLYPROPYLENE BROOM FILLER

- TOUGH — RESISTS CONSTANT ABRASION
- GREATER FLEXIBILITY MEANS LONG LIFE
- TOP EFFICIENCY IN ANY WEATHER
- RESISTS MOST CHEMICALS, GREASES, ACIDS

With Wynene 18 Broom Filler, your present street-sweepers will perform with greater efficiency. Especially engineered for rotary brooms, it does a thorough job of keeping city streets clean. Wynene 18 has proven its superior qualities in actual service. Its unusually rugged qualities mean longer life, fewer replacements, with consequent lower maintenance cost. Get all the facts now about Wynene 18 Broom Filler. Standard specifications: .075 x 105 x 26", in Natural. Other gauges and lengths available to meet your specific requirements.

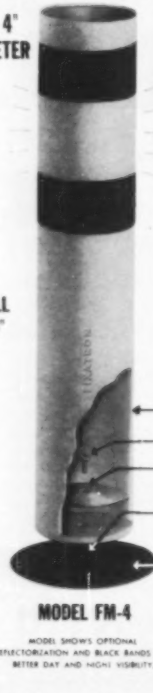
*DISTRIBUTORS:*

**FREDERICK H. CONE & COMPANY, INC.**
**181 FRONT STREET • NEW YORK 38, N.Y.**

*MANUFACTURERS:*

**THE NATIONAL PLASTIC PRODUCTS COMPANY**
Saran and Nylon Fibers—Nevamar High-Pressure Laminates—Wynene Extruded and Molded Products
ODENTON, MD. • NEW YORK, N. Y. • MIAMI, FLA. • CHICAGO, ILL.
DENVER, COLO. • PORTLAND, ORE. • LONG BEACH, CALIF. • SAN FRANCISCO, CALIF.

# NEW "JUMBO" SIZE


FAT 4" DIAMETER
TALL 20"
tapered wall of solid yellow rubber
stainless steel bolt
spring steel convex washer
¼-20 weld nut (welded to base)
6" cadmium plated disk

## *Fixatron**

TRADE MARK

## TRAFFIC MARKERS

A PRACTICAL FIXED LANE DELINEATOR AND/OR BARRICADE WITH ALL THE GREAT FEATURES OF THE SMALLER FIXATRON TRAFFIC MARKER. THE SAME 6" DISK BASE IS INTERCHANGEABLE WITH THE FM-2 MODEL. THIS IS AFFIXED TO THE HIGHWAY SURFACE WITH EPOXY COMPOUND. EXCLUSIVE TAPERED DESIGN ENABLES THE FIXATRON TO WITHSTAND OCCASIONAL RUNNING OVER WITH A SNAP-BACK ACTION. USE THIS GIANT "JUMBO" FIXATRON FOR BETTER VISIBILITY AND POSITIVE TRAFFIC CONTROL.

*Patents Applied For

**MODEL FM-4**

MODEL SHOWS OPTIONAL REFLECTORIZATION AND BLACK BANDS FOR BETTER DAY AND NIGHT VISIBILITY.

**NATIONWIDE**
TRAFFIC ENGINEERING PRODUCTS CORP
HIGHWAY TRAFFIC CONTROL SYSTEMS

2535 Mt. Carmel Avenue,
Glenside, Pennsylvania

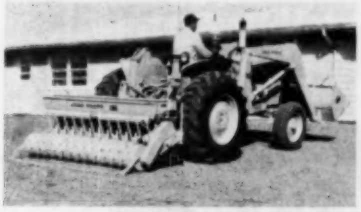
# HI-RANGER SPEEDS ALL OVERHEAD UTILITY JOBS

A mobile aerial tower provides greater speed, safety and operating flexibility than does any other known method of performing overhead line and utility maintenance work. In the utility field Hi-Ranger is THE leading tower.

Because the Hi-Ranger is easily operated and handled by a one or two-man crew, you can drastically cut maintenance costs while servicing far greater areas in much less time. The Hi-Ranger makes a "whole team" out of one man. CALL, WIRE or WRITE NOW for complete Hi-Ranger details.

- **All-hydraulic operation and single "3-D" control.**
- **All-hydraulic pruning tool and chain saw. No additional power source required.**
- **Reach ranges from 32 feet, and up.**
- **Fiberglass boom and platform construction; many other features for best insulation and safety.**

**HI-RANGER** Mobile Aerial Towers, Inc.
1730 N. Harrison St. Fort Wayne, Ind.



*The 3-point hitch 265 Landscape Seeder used with a John Deere ⅝-yard wheel loader on a lawn-seeding project. It can be used for planting any lawn or cover-grass mixture, including legume seeds.*

*(Continued from page 197)*

presses a cover over the seed and breaks clods and aerates the soil. A trailing chain covers exposed seed and spreads a cover of pulverized soil over the entire planted area.

The machine was designed to meet the requirements of park systems, landscapers and golf course builders in addition to street and highway building and maintenance departments. For full facts, write John Deere, 3300 River Drive, Moline, Ill.

## Rubberized Asphalt Kettle

The new KE-RA-20 rubberized kettle applies hot material directly into the joint. Material is heated indirectly by heat transfer oil. A mechanical agitator mixes materials and aids in speeding up melting time.

The unit works right up to curbs, bridge rails and other obstructions. A swivel caster in the rear aids maneuverability. The KE-RA-20 is one in a complete range of rubberized asphalt kettles ranging from 18 gallons to 75 gallons that are manufactured by Aeroil Products Co., Inc., 9 Wesley St., South Hackensack, N. J.

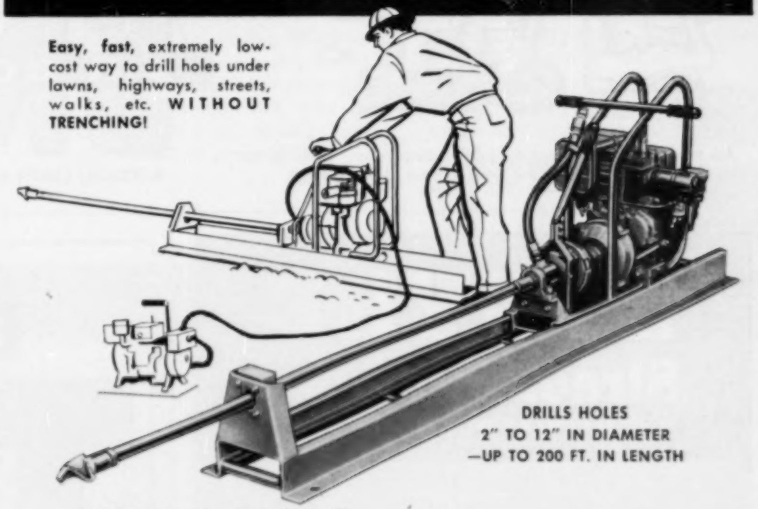
## Tankless Bituminous Distributor

*On the MTD tankless distributor controls are within easy reach and gauges in full view.*

Metropolitan counties will find a new trailing tankless-type bituminous distributor introduced by Seaman Corporation ideal for asphalt stabilizations and large sealcoating jobs. It is towed by the bituminous supply truck from which the distributor draws its material and can be towed job-to-job at highway speeds.

The manufacturer reports that it

NEW CMC *Wonder*
HORIZONTAL EARTH DRILL



**Easy, fast, extremely low-cost way to drill holes under lawns, highways, streets, walks, etc. WITHOUT TRENCHING!**

**DRILLS HOLES 2" TO 12" IN DIAMETER —UP TO 200 FT. IN LENGTH**

**CMC Wonder Earth Drill** cuts through tough earth formations, tree roots — even soft sandstone. *Takes only 30 seconds to drill a 2-inch hole, 5 feet. Drills holes up to 200 feet long with amazing accuracy.* Plenty of power (Briggs & Stratton 5.75 H.P. 4-cycle engine) for drilling holes up to 12" in diameter. Easily set up and operated, one man can handle it.

A specially designed *CMC ¾" pressure pump* is available to hook up to Wonder Drill to provide water pressure for flushing loose earth from drill bit area.

Eliminate unnecessary trenching and tearing-up-pavement-costs—install pipe at lowest cost by mailing coupon today for complete details on CMC Wonder Earth Drill.

**FREE**
**CATALOG...MAIL COUPON**

CONSTRUCTION
MACHINERY CO.
WATERLOO, IOWA

Rush catalog, prices on new CMC Wonder Earth Drill and CMC ¾" Pressure Pump.

NAME ____________________
COMPANY ____________________
ADDRESS ____________________
CITY ____________ STATE ____________

## ALL "SHOOK UP" DECIDING ON AN AIR COMPRESSOR?

*Take "Hardrock Smitty's" advice and*

## GO SMITH!

There's a complete line of Smith compressors ranging in size from 45 cfm to 125 cfm in both portable and stationary models. The Smith compressor is designed and built to deliver years of trouble free service under all conditions.

- low initial cost
- low operating cost
- easy maintenance
- simple, compact design
- quick starting
- single stage compression

*Compare price . . . compare job results you'll go Smith!*

**SMITH**
**AIR COMPRESSORS**

Ask your dealer for an "on the job" demonstration. (write us for complete information and the name of your nearest dealer)

**GORDON SMITH & COMPANY, INC., Bowling Green, Ky.**

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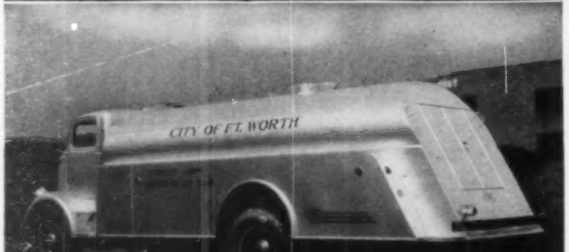
# ETNYRE
## Street Flushers
"THE MACHINE OF A DOZEN USES"



**SUPERLINER MODEL . . . REAR ENGINE DRIVE**

You'll be proud of this modern, streamlined street flusher! Regularly furnished with 3 nozzles, 600 G. P. M. pump, 800 to 3000 gallon tank, mechanical controls, vertical valves. Motor enclosed in rear compartment is quickly accessible for servicing. Get literature, prices and delivery from your Etnyre dealer or write us today.

**E. D. ETNYRE & CO., Oregon, Illinois**

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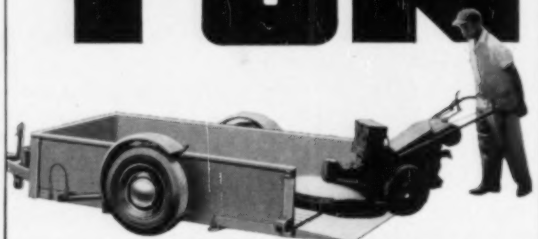
# ONE MAN LIFTS A TON



## . . . OF GROUNDS CARE EQUIPMENT!

*. . . hauls, unloads, re-loads it, too . . .* with Trailevator, the amazing hydraulic elevating trailer that lowers to ground level for easy, one-man loading . . . *lifts its own load* in seconds! Parks, golf courses, colleges, cemeteries . . . if maintaining grounds is your responsibility, find out how you can get more jobs done in less time, *at less cost* . . . with Trailevator.

**SEND TODAY FOR BULLETIN GC-100!** *Trailevator Division, Magline Inc.,* P. O. Box 44, *Pinconning, Michigan*

**Trailevator**
TAKES THE LIFT OUT OF LOADING

*(Continued from page 199)*

can be kept working virtually nonstop. On jobs remote from the source of supply, one tankless distributor can handle the material brought in by a fleet of tank trucks. Removal of spray bar, pump, engine, and controls from the tank truck also permits the hauler to carry a larger payload. A 50-hp engine powers the 375 gpm pump.

Material is fed to the Duo-Flo spray bar from both ends and center, assuring immediate, even distribution of bituminous material to the surface to be coated. The spray bar folds vertically and swings back if it strikes an obstruction. Nozzles are spaced 4 inches apart. Extensions increase the length from 12 feet to 24 feet.

For additional information on this complete pumping and spraying unit for long haul jobs, write SEAMAN-GUNNISON DIVISION OF SEAMAN CORP., P. O. Box 3025, MILWAUKEE 18, WIS.

## Two-Way Radio Gets Cheaper and Better

When police radio was making its debut, many police departments had to hold dances and sociables in order to raise the price of the equipment.

Now when two-way radio has become essential and no police department would be caught without a system, the price seems to be on a descending elevator. The latest is word from General Electric Communication Products Department that a new line of compact two-way radios for the municipal market is available at 30% less than the price for the previous line.

Kent J. Worthen, G-E national mobile radio sales manager, said 15-watt units will be marketed immediately under the name "General Electric Pacer" and will sell for $419. The product will be a boon, Worthen said, for prospective two-way radio users eligible in small communities where price is important and in large cities where the savings per

*(Continued on page 203)*

MEN
WORKING

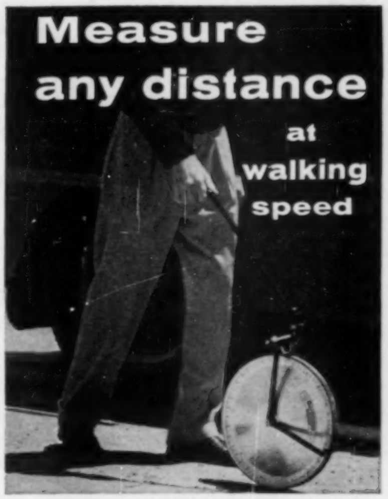
This compact Jaeger Model 2PN, pumps all the water a 2" suction hose can handle. **With 2½" suction hose it pumps more than 14,000 gph.**

**Now handle more water with Jaeger pumps**

Today's Jaeger Sure Prime pumps deliver performance never before offered—and at slower, long-life operating speeds. For example, a Jaeger 6PH can handle 100,000 gph as a dewatering pump or deliver 975 gpm at 60 psi pressure for well point jetting or gravel washing. Base your pump buying on latest information. See your Jaeger distributor or send for catalog.

**THE JAEGER MACHINE CO., 505 Dublin Avenue, Columbus 16, Ohio**

AIR COMPRESSORS • MIXERS • PAVING SPREADERS and FINISHERS



**records 100,000 ft.**
***automatically!***

**It's So Easy** to measure with a Rolatape . . . and you save time on every estimating job . . . no tapes to wind, no helper is required. You get precision-accurate measurements every time.

**Records Feet** automatically and the accumulated total is always in full view.

**Shows Inches, and Fractions** of an inch. Wheel is calibrated in inches and fractions for quick easy reading.

**Shows Tenths** of a foot. Wheel is calibrated in tenths on reverse side for engineers.

*See your engineering and surveying instrument dealer or write for complete information today!*

*Rolatape, Inc.,*
*1741 14th St.,*
*Santa Monica 2,*
*California*

There is a variety of Rolatape Models to suit your needs. See them at your local dealers.

**Rolatape**

**Measuring Wheels**

# Mechanized Ice Control at a Low-Budget Price!

## *BAUGHMAN SAFETY SPREADER*

The low cost of the Baughman Safety Spreader makes the speed and convenience of mechanized ice and snow removal practical for even the smallest community. Exceptionally maneuverable—can be used on sidewalks, parking lots, school yards and other confined areas, as well as for conventional spreading on streets and highways.

The Safety Spreader can be pulled by any vehicle equipped with power takeoff. (Optional auxiliary engine available at extra cost eliminates need for PTO). Distributes sand, salt, cinders and other types of removal material. Spreads accurately at all speeds; spreading patterns adjustable from 3 to 32 feet.

***Write for Bulletin A-453.***

***Better service through better engineering ...service and parts from 200 distributors.***

**BAUGHMAN** TRANSPORTS-SPREADERS-CONVEYORS

**BAUGHMAN MANUFACTURING COMPANY, INC.**

307 SHIPMAN ROAD • JERSEYVILLE, ILL. 6060

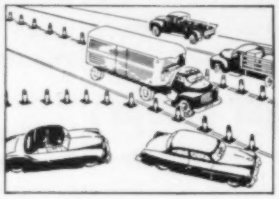
# HERE is the answer to EMERGENCY BARRICADES

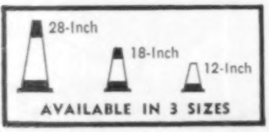
***Lightweight, Easily-Adaptable***

# SAFE-T-CONE TRAFFIC GUIDES

**SAFE-T-CONES are proven and accepted by Federal, State and Municipal traffic authorities in hundreds of major cities ...for traffic channeling, utility repairs, line painting and emergency blockades.**

**SAFE-T-CONES are easily adaptable to all situations at a moment's notice. Special construction allows them to be "stacked" in small space.**





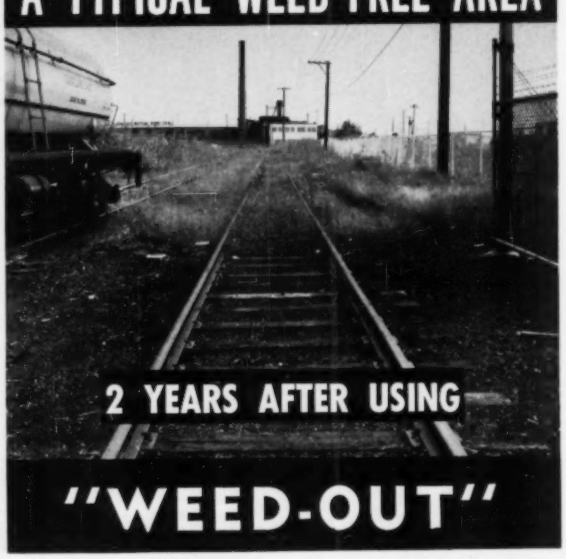
**AVAILABLE IN 3 SIZES**

**Solid-Color PVC* POLY-CONES—18-inch and 28-inch sizes. Outlasts ordinary cones without upkeep!**

*Poly-Vinyl Chloride

**For full information write**
**RADIATOR SPECIALTY CO., CHARLOTTE, N. C.**

# A TYPICAL WEED-FREE AREA



**2 YEARS AFTER USING**

# "WEED-OUT"

For ideas and "know-how" on good industrial housekeeping, get our 1961, Free 52-page brochure.

**FencPainteR Division**
**4911 SOUTH RACINE AVENUE, CHICAGO 9, ILL.**

## Purchasing

*(Continued from page 201)*

unit can effect substantial economies on large fleet purchases.

For additional information, write General Electric Communication Products Department, P. O. Box 4197, Lynchburg, Va.

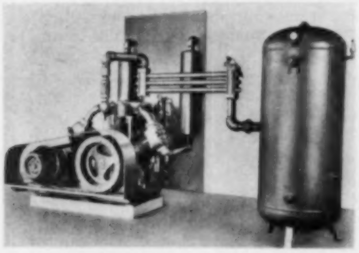
## New Series of Crawler-Mounted Machines

The new Quick-Way crawler features tractor-type undercarriage which permits a great amount of travel without usual wear. It has independent swing and travel with two-speed traction forward and reversed and double spring positioned shock absorbing idler sprockets.

All lubrication points of the crawler underframe can be lubricated from a single position. Low profile, full grouser and flat pads are available in various widths.

There are three new crawler models: 85-BC, 3/8-yard; 100-BC, 3/8-1/2 yard; 125-BC, 1/2 yard. For additional information, write Quick-Way Truck Shovel Co., 2401 E. 40th Ave., Denver 5, Colo.

## New Accessories for Stationary Compressor



***An extensive line of new accessory items offered by Le Roi for its stationary compressors in the 25 to 100 horsepower class include intake silencers, an unloaded starting delay system, dual controls, aftercooler, receiver, oil, filter, drive belt and intercooler guards, low oil pressure safety switch, pressure guage and drain valve. For detailed information, write SALES PROMOTION DEPT., LE ROI DIVISION, WESTINGHOUSE AIR BRAKE CO., SIDNEY, OHIO.***

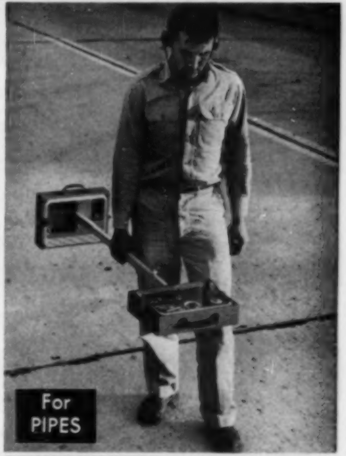
**GOLDAK TRANSISTORIZED LOCATORS**

**Pipe Locator-Leak Detector**

**"Dualtronic"**

**Model LC-5T**

**The new "Dualtronic" combines the finest transistorized Pipe Locator ever developed with a high-gain Leak Detector to produce an effective and useful multi-purpose instrument. Designed specifically for Municipalities and Water Companies, the LC-5T assures pin-point detection of pipes, cables, mains and laterals and becomes a sensitive detector for water leaks simply by plugging in a crystal, rubber-encased microphone. Additionally, by a simple manipulation the new "Dualtronic" will pin-point valves, risers, boxes, and manhole covers. Now with transistors the versatile LC-5T is lighter, more sensitive, easier to operate, and it requires only flashlight batteries . . . Write today for further details on the "Dualtronic" and other Utility detection instruments.**


For PIPES

For LEAKS

The GOLDAK Company, Inc.
Leading Electronic Manufacturers Since 1933
1544 W. Glenoaks Blvd.
Glendale 1, Calif.

WORLD'S FINEST DETECTION EQUIPMENT MANUFACTURERS SINCE 1933

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welcome to the world

SANTA MONICA'S

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and NEW TOWER California's World-Famous Resort overlooking the Blue Pacific where Wilshire meets the sea. Twenty minutes from International Airport. 450 luxurious rooms and bungalows, all with television and radio. Complete convention facilities. Banquet rooms for up to 2,000, air-conditioned. Exciting new Venetian Room and Cantonese Room. Swimming pool Beautiful grounds and landscaped gardens. Rates from $8

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- GALLUP, N.M. Hotel El Rancho
- ALBUQUERQUE, Hotel Franciscan
- DENVER, COLO. Hotel Park Lane
- WASHINGTON, D.C. Hotel Raleigh
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is the efficient, economical and safe method for complete disposal of all bulky municipal wastes not suited for landfill. Send coupon for detailed information.

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Offering a background of a quarter century of

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*No other filtering medium compares with*

# ANTHRAFILT

Trade Mark Reg. U. S. Pat. Off.

**Anthrafilt stands alone as the one Filtering Medium that is *best* for all types of filters.**

Years of efficient and economical use in every type of filter plant has made ANTHRAFILT the standard of excellence in the filtering medium field.

## ANTHRAFILT

*offers important advantages over sand and quartz*

DOUBLES length of Filter runs • REQUIRES only half as much wash water. • KEEPS Filters in service over longer periods. • INCREASES Filter output with better quality effluent. • GIVES better support to synthetic resins. • PROVIDES better removal of fibrous materials, bacteria, micro-organic matter, taste, odor, etc. • IDEAL for industrial acid and alkaline solutions. • EFFECTIVE filtration from entire bed. • LESS coating, caking or balling with mud, lime, iron, or manganese.

IDEAL FOR USE IN EVERY TYPE OF FILTER

*Write for further information, test samples and quotations to:*

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P. O. Box 1696 — 822 E. 8th St., Erie, Pa.
*Representing:*
**ANTHRACITE EQUIPMENT CORP.**
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NEW STANDARD
2-Way
LAKE SHORE
NEW STANDARD
4-Way

**And other Municipal Identifications**

**HISTORICAL MARKERS**
*
**GOLF COURSE MARKERS**
*
**MUNICIPAL BUILDING PLAQUES AND LETTERS**
*
**MEMORIAL PLAQUES**

You name it—we can make it. Special coatings assure long life, because they're resistant to the ravages of weather, airborne acids, alkalies and other contaminating materials. Outstanding 24-hour visibility due to their Prismo reflectorized letters. Also in plain satin finish. *Send for brochure "AC".*

LAKE SHORE MARKERS INC

CAST *Lifetime* ALUMINUM

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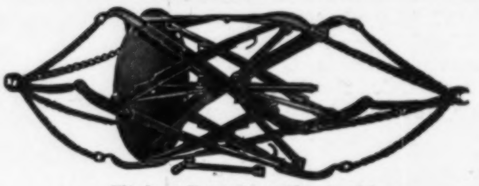
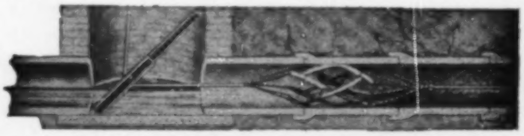
# EXPANDING ROOT CUTTER SEWER CLEANER



Fits in on Every Sewer Cleaning Job
Adjusted in 30 seconds to fit sewer from 8 to 30 inches.

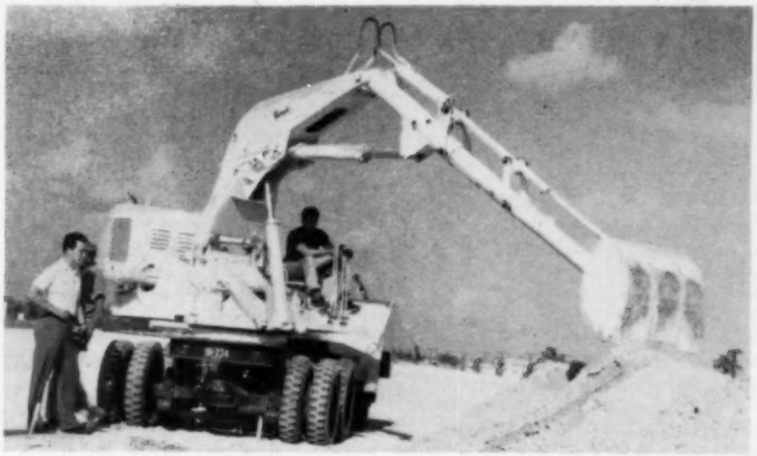
Will clean the entire sewer wall, top, and sides as well as the bottom, cutting and removing the roots and caked sediment, putting the sewer system in almost 100% clean condition.



Open and in action removing roots and cake sediment like this.

*Write for our new catalog on complete sewer cleaning equipment.*

**EXPANDING SEWER MACHINE COMPANY**
108 East Walnut St. Nappanee, Ind.



### Hydraulic Hoe-Loader-Shovel

Yumbo Model 35 is a compact, powerful, hydraulic rough-terrain crawler with an unusually low ground pressure. Its high-torque piston type hydraulic motor drives each track independently, eliminating the entire conventional center pin drive and steering mechanism.

Hydraulic Equipment and Shovel Co., Bank of Southwest Bldg., Houston 2, Texas reports that high-torque hydraulic motor swing arrangement and 50-ton enclosed double row ball bearing turntable provides continuous rotation in

*(Continued on page 206)*

BEST BUY IN WATER STORAGE
PRESTRESSED CONCRETE TANKS

2,000,000 gallons—Cedar Hills Reservoir, Ridgewood, New Jersey

- *minimum maintenance*
- *75% construction cost spent locally*
- *architecturally modern*
- *longest service life*
- *lowest overall cost*

In the development of residential and industrial water supply facilities today, no other type of tank offers so many advantages as does the Prestressed Concrete Tank. Modern in engineering and design, proven in service, lowest in cost... prestressed concrete should be considered in any tank planning.

Send for Bulletin T-22.

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**Re-new your structures with GUNITE!**

★ durability
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estimates, specifications and surveys made free of cost to you. write, wire or call MElrose 4-8120

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*CONTRACTS TAKEN ANYWHERE*

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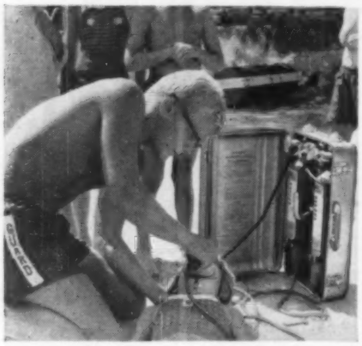
NCG® wherever emergency strikes...



**Handy*** Resuscitators automatically breathe when the breath of life is gone.

The Handy Resuscitator does *three* important things:

1. It automatically inhales and exhales, adjusting automatically the depth of respiration to the patient's lung capacity, for an adult, child or even *infant*.
2. It can be quickly switched to "Inhalation" to supply oxygen to be absorbed by the spontaneous respiration of the patient.
3. It provides sufficient suction as an Aspirator to remove obstructing material from the throat, such as water, mucus, etc.

**"BE PREPARED"**
for drownings,
carbon monoxide
poisonings, heart attacks,
electric shock,
strangulation, asthma,
asphyxia of
the new-born.

*Get complete information today.*
*Phone or write now.*

**NATIONAL CYLINDER GAS**
**DIVISION OF CHEMETRON CORPORATION**
**840 North Michigan Avenue, Dept. M-10-D**
**Chicago 11, Illinois**
**CHEMETRON**

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(Continued from page 203)

either direction with no "dead-spot," permitting easy access to digging and loading. Yumbo is manufactured in crawler and self-propelled models with a wide range of working attachments.

## Lock Joint Expands

Formation of a new Plastics Division and the appointment of R. J. Sweitzer as its general manager has been announced by the Lock Joint Pipe Co., East Orange, N. J. manufacturer of pressure, sewer, culvert and subaqueous pipe. The new division will be located at Wharton, N. J.

The company recently acquired Electro-Chemical Engineering and Manufacturing Co., Emmaus, Pa., and El-Chem Engineering and Manufacturing Co., Ontario, Canada, manufacturers of coatings and fabricate films using synthetic resins. Allan M. Hirsh, Jr., president of Lock Joint, views this acquisition as "an important step in Lock Joint's entry into the field of corrosion resistant construction materials."

Electro Chemical will operate as a wholly-owned subsidiary of Lock Joint.

## Ice Control Film

To aid city, county and highway officials plan more effective winter ice control programs, International Salt Co. produced the 35mm color filmstrip with sound, "Clear Roads Ahead."

In illustrating the use of straight Sterling auger-action rock salt to obtain open roads and safe driving conditions on streets and highways throughout the winter, the film preents alternative methods of ice control, emphasizes the safety, speed and savings of straight Sterling rock salt, and points up the reasons why more street and highway departments each year use straight rock salt.

Film is available on loan through the company's sales offices or by writing INTERNATIONAL SALT CO., CLARKS SUMMIT, PA.

## Trash Collection Made Easier

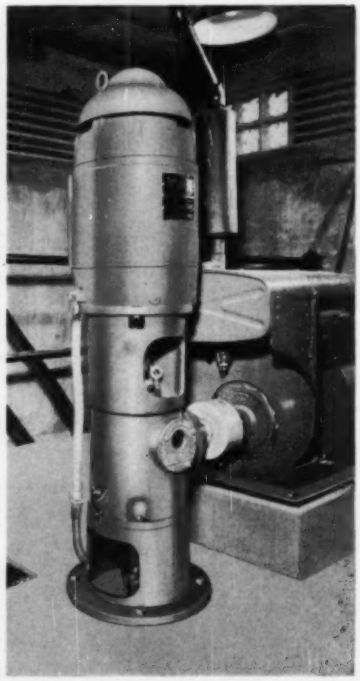
A newly developed machine—the Stetco Trashman—a tractor-mounted crane with knuckle boom and hydraulically - controlled rotating bucket, promises to be the answer

For positive protection against power failures, install

**JOHNSON**
*Right angle*
**GEAR DRIVES**

Cross State Development Co. installed the Johnson combination drive shown here in a sewage disposal plant in Florida. They report: "It's recognized as one of most efficient, packaged systems in the Tampa area. We've never experienced any difficulty." Neither will you because Johnson combination drive assures engine take-over the instant electricity fails. Either power unit may be overhauled without interrupting service.

Sizes: 15 to 450 hp. Johnson Right Angle Gear Drives are available in combination, dual and standard types; for all horizontal prime movers; hollow or solid shaft. Please write for engineering catalogs.

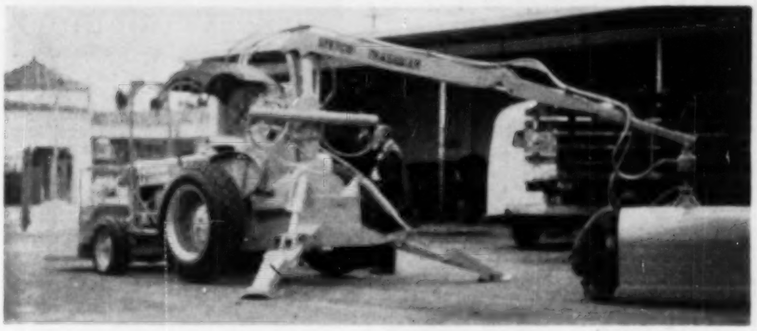


7-R

MEMBER OF AGMA

**JOHNSON** MAKERS OF FINE GEARS SINCE 1904
**GEAR & MANUFACTURING CO., LTD.**
8TH AND PARKER STREETS • BERKELEY 10, CALIFORNIA

**East and Gulf Coast representatives:**
**Smith Meeker Engineering Co., 157 Chambers St., New York City**



to the trash collection problem peculiar to the southern part of the United States.

The "southern problem" is created primarily by fallen palm fronds, which grow to 14 or 16 feet. It isn't possible to place this material in containers for refuse collection. Therefore all trash, including the fronds, hedge clippings, mowed grass and paper, is piled loosely in front of the homes beside the street.

Vehicular-mounted cranes with semi-open ended clam shell buckets have been most successful in picking up this type of trash and depositing it in trucks for disposal. Knuckle boom construction of the Trashman makes it possible to position the bucket directly under trees without damaging branches or tree limbs. It also enables attaching of the bucket directly to the boom so that the bucket may be rotated hydraulically to give positive control of direction.

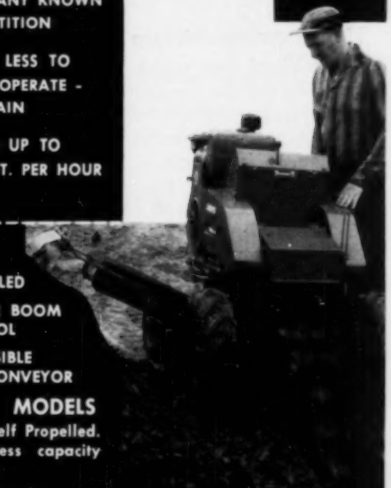
Dade County, Fla. has purchased six of these units, which can be operated by one man. It plans to use them in county areas not covered by municipalities.

The Trashman was developed by Stedt Hydraulic Crane Co., Ashland, Mass., makers of the Stetco catch basin cleaner, in cooperation with Howe E. Moredock Co., Miami,

*(Continued on page 208)*

**ARPS** MODEL L-12 **Trench Devil** CHALLENGES ALL COMPARISON!

- DIGS WIDER - DEEPER - FASTER THAN ANY KNOWN COMPETITION
- COSTS LESS TO BUY - OPERATE - MAINTAIN
- SPEEDS UP TO 1200 FT. PER HOUR



GET THE FACTS and complete specifications on the Trench Devil from this specially prepared brochure.

- SELF PROPELLED
- POWER BOOM CONTROL
- REVERSIBLE DIRT CONVEYOR

OTHER MODELS
MA-2 - Self Propelled. Slightly less capacity than L-12
- JR Trencher Economy Model, hand winch propelled.

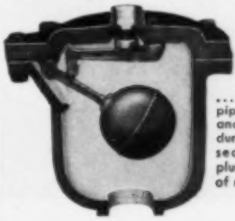
• TRENCHERS • HALF TRACKS • DOZERS • UTILITY BLADES

ARPS SINCE 1920
**ARPS**
CORPORATION
DEPT. AC
NEW HOLSTEIN, WIS.

**Crispin**

**AIR VALVES**
*are thoroughly dependable*

For positive air control use Crispin Air Valves. Simplified construction, easy accessibility, maximum dependability, minimum maintenance, and efficient operation are advantages built in every Crispin Air Valve.



**Crispin**
MODEL "P" AIR VALVES
... eliminate air in pipelines, pumps, tanks and other vessels—durable stainless steel seat and synthetic plunger resist attack of many liquids.

3" CRISPIN
DUAL
VALVE

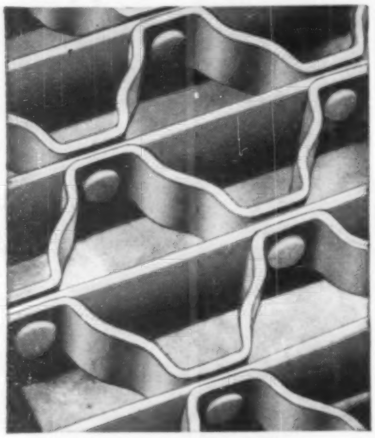
**Crispin**
DUAL VALVES
... safely release air during line filling and while it is in operation, permit air to enter as line is emptied—low-cost 3-way control.

**Crispin**
TURBINE VALVES
... control air from inlet through outlet. Strains out foreign substances. Particularly useful with automatic priming systems of centrifugal pumps.

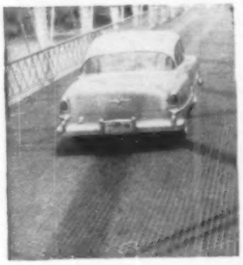
*Write, wire or phone for complete information on dependable Crispin Air Valves that keep your pipelines open for safe, economical operation.*

AIR CONTROL VALVES • FOR OVER 50 YEARS
**multiplex**
MANUFACTURING COMPANY
BERWICK, PENNSYLVANIA
Dept. E

New "CK"
BRIDGE
DECKING
ENDS WEAVING
OF CARS



Modification of the original Irving Type V Decking has eliminated "weaving" on open mesh steel floors. The improvement is effected by a $\frac{3}{16}$" elevation difference of the crimped bars over the straight bars.



"CK" Decking, successfully field-tested for 4 years, has the same advantages of safety, strength, durability and self-maintenance as standard Type V Decking

Write for
Complete Information
on New "CK" DECKING.
★
"A Fitting Grating
for Every Purpose"

IRVICO®

IRVING SUBWAY GRATING CO., Inc.
Originators of The Grating Industry Est. 1902

Offices and Plants at
1830 10th St., Oakland 23, California
5030 27th St., Long Island City 1, N. Y.

## Purchasing

(Continued on page 207)

Fla., southern Florida distributors of International Harvester trucks and tractors. Dade County's six Trashmen are mounted on International tractors, Model 460.

### P&K Absorbs Tassco

*Henry Pfaff*

Traffic and Street Sign Company, for many years a leading manufacturer of traffic and regulatory signs, has, with all its facilities, been merged into the Pfaff & Kendall organization, manufacturers of all-aluminum lighting standards, traffic signal standards and over-the-road sign spans. In the past Tassco has functioned as an independent associated company.

According to Henry Pfaff, president of P & K, the takeover and integration of Tassco with P & K is expected to provide an even wider scope of services and products for customers of both. The full services of P & K's larger engineering and production facilities and the complete sales organization of P & K will be utilized in the promotion and development of signs of every type.

### Purchasing News Briefs

- **John Wood Co.,** which is rapidly expanding in the air pollution control field, has appointed Hampton Engineering Equipment Co., 50 Church St., New York, N. Y. as sales representatives for the New York State and Connecticut area for its **Air Pollution Division,** Florham Park, N. J. Hampton will handle the John Wood line of scrubbers, cyclone and fabric filters and other equipment.
- **Infilco Inc.** of Tucson, Ariz., a leader in the field of water and waste equipment design and manufacture, has been acquired by General American Transportation Corporation of Chicago. It will continue to operate under its present management as part of the Fuller group of General American.
- plans for the conversion of the building housing the former No. 2

Four Fine Facilities
in PITTSBURGH

**ALLEGHENY MOTOR INN** Opposite Greater Pittsburgh Airport. 60 air-conditioned rooms, tile bath, TV, radio, phone. Superb restaurant and cocktail lounge. Year-round swimming pool. Courtesy car to and from airport. **AMherst 4-7790**

**HOTEL PITTSBURGHER** In the heart of the Golden Triangle. 400 outside rooms, bath, TV, radio, air-conditioning. General Forbes Lounge & Dining Room. **ATlantic 1-6970**

**JACKTOWN MOTOR HOTEL** 1 mile west of Irwin Interchange on Route 30. 60 air-conditioned rooms, TV, telephone, combination tile bath. Facilities for dining and group parties. **UNderhill 3-2100**

**HOTEL PITTSBURGHER MOTEL** Opposite Greater Pittsburgh Airport. 56 air-conditioned rooms, tile bath, radio, TV, phone. Courtesy car to and from airport. **AMherst 4-5152**

KNOTT K HOTELS

*Teletype Service. Telephone any Knott-Hotel. All Knott Hotels and offices in U.S. connected by teletype.

Joseph F. Duddy General Manager

Holiday Shores MOTEL

DIRECTLY ON
"WORLD FAMOUS"
DAYTONA BEACH

EFFICIENCIES FROM $50.00 PER WEEK
BEDROOMS FROM $40.00 PER WEEK

LARGEST AND FINEST—
- HEATED POOL • COLOR TV LOUNGE
- RESTAURANT • COCKTAIL LOUNGE
- PLANNED ENTERTAINMENT
- DELUXE ROOMS & EFFICIENCY SUITES

SEE YOUR TRAVEL AGENT OR WRITE
PAUL F. GOCKE, MANAGER
CL 2-0431

1015 S. ATLANTIC AVE.
DAYTONA
BEACH
FLORIDA

Foundry at **Allis-Chalmers** West Allis (Wis.) Works into a tractor production facility have been announced. According to Boyd S. Oberlinck, Senior Vice President, Tractor Group, the new facilities are part of a general rearrangement of production areas which started last fall with the addition of a completely new line of compact crawler tractors.

- a second assembly area for production of its motor control center units has been put into use in the St. Paul, Minn., plant of **Automatic Control Company**, one of the Midwest's largest manufacturers of control systems for water, sewage and industrial installations. The new area is expected to increase production capacity of this department by over 100%, reports John S. Williams, vice president for sales and engineering.

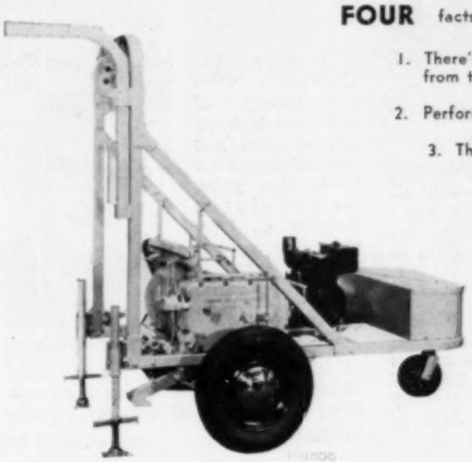
- in an address before the annual convention of the County Engineers' Association of Ohio in Columbus, Walter H. Metzler, Wayne County Engineer and Association president, said that by using **Firestone** rubber road materials, engineers in Ohio counties have reduced the cost of paving operations from 10 to 18 per cent. Firestone manufactures two basic types of Rub-R-Road compounds for use with asphalt—R-524 liquid form for seal work and R-504 for hot mix.

*Standing in front of their newly purchased Caterpillar diesel engine are (left to right) Mayor Lawrence McCarthy, Commissioner of Public Works Joseph Keith and Supervisor of Water Distribution Raymond Anderson—all of Pawtucket, R. I., which plans to use the D397 turbocharged engine as a standby power unit. Continuously rated at 500 hp, 1200 rpm, the D397 will drive a Model 14LA3 Series Worthington two-stage centrifugal water pump, through a twin disc clutch and Falk Steelflex coupling, and will deliver 9 million gallons of water. The engine was purchased from Perkins Machinery Co., Inc. of Needham Heights 94, Mass. and Springfield, Mass. It is equipped with a Ross Heat Exchanger and Maxim Silencer.*

TURCO

MAXI-POWER
Sewer Cleaning
Unit

Note the STIFF LEGS—quickly adjustable to compensate for uneven ground.



Sewer Cleaning Brushes, Buckets, Ferrets, Flushing Bags, Rods, carried in stock for immediate delivery

**ONE** unit consists of:

**TWO** machines, located at the ends of the sewer section to be cleaned.

**TWO** models (501 and 502) each with 3-speed transmission, enable you to get the exact power and line speed you need:

| | 1st gear | 2d gear | 3rd gear |
|---|---|---|---|
| #501 | 11000 lbs. | 9000 lbs. | 7000 lbs. |
| #502 | 15000 lbs. | 12000 lbs. | 9000 lbs. |

**FOUR** facts to consider:

1. There's a unit exactly right for any city, from the largest to the smallest.
2. Performance is easy, quick, thorough.
3. The original full flow of the sewer is restored.
4. Each part is designed and engineered for long life.

Write for catalog

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Sewer Machine
Company**
Division of
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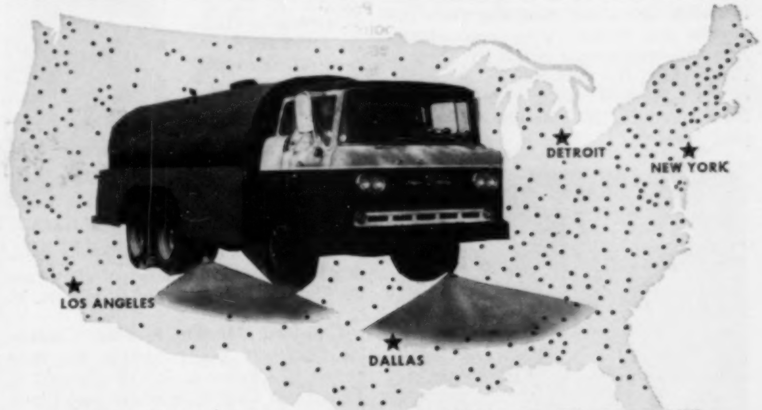
Milwaukee 12, Wis.



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Cities Small and Large Use **ROSCO FLUSHERS**

CLEAN STREETS THOROUGHLY—EFFICIENTLY, ECONOMICALLY

Rosco flushers are designed for the utmost in efficiency. A modern, high compression, short-stroke power plant furnishes high pressure water streams to flush any paved surface really clean. Heavier gauge steel tank for longer life . . . mounted integrally to the frame. High quality and ease of service make Rosco flushers the choice of modern maintenance departments in cities all over the U.S. Remember . . .

*Rosco engineered to out-work your toughest jobs*

Rosco MINNEAPOLIS

ROSCO MANUFACTURING CO.
3118 Snelling Avenue • Minneapolis 6, Minnesota

# ABOUT PEOPLE

*Frank Macdonald*

**Electro Rust-Proofing Corp.** of Belleville 9, N. Y., a subsidiary of Wallace & Tiernan, Inc. which provides cathodic protection services for all submerged or underground metals — pipeline, water towers and storage tanks, etc. —has elected Frank P. Macdonald, pioneer in the principles of cathodic protection for corrosion control, to the position of president.

**Stanley Engineering Co.,** consulting engineers, has appointed Harold K. Pratt, P. E., to its staff as the firm's Chief Civil and Hydraulic Engineer. He is located at the firm's headquarters in Muscatine, Ia.

The election of Meno Schoenbach to the post of vice president-public relations-advertising for **Fulton Cotton Mills** and **Fulton Industries, Inc.,** both of Atlanta, Ga., was announced recently by Bernard A. Mitchell, president of Fulton Industries.

**B-I-F Industries, Inc.** of Providence, R. I., announces the appointment of Henry N. Armbrust as systems engineer in charge of vacuum diatomite filters for potable and process water applications. Another appointment is that of Thomas F. Sheehan, Jr., who will be in charge of the promotion and application of the B-I-F product line for the swimming pool industry.

*Henry Armbrust*

*Thomas Sheehan*

**International Salt Co.,** Clarks Summit, Pa., has named S. James Duncan, former highway sales manager, manager of highway technical service, and A. Stuart Hunter, manager of highway technical service.

Charles H. Grisemer has joined the home office staff of the **American Bitumuls & Asphalt Co.,** San Francisco 20, Calif., as staff engineer, according to an announcement by C. W. Turner, president. Wayne Deem has been named to replace Mr. Grisemer as resident manager in Columbus, Ohio.

The two men recently elected to newly-created vice presidencies by the board of **Pipe Linings, Inc.,** Wilmington, Calif., are Bert Espiau, who will be directly responsible for general administration, and Donald N. Chamberlain, who will have responsibility for sales and civil engineering. According to Robert V. Edwards, president of both Pipe Linings, Inc. and its parent company American Pipe and Construction Co., both men will report to Robert C. Sargent, executive vice president of Pipe Linings, Inc.

*Kenneth Dorland*

The **Union Metal Manufacturing Co.,** Canton, Ohio manufacturer of street and highway lighting poles and floodlighting and traffic sign poles, has appointed Kenneth C. Dorland as general sales manager. He succeeds the late Louis F. Heckmann, former vice president in charge of sales. Mr. Dorland joined Union Metal in 1925, his most recent position being manager of all Outdoor Lighting Products.

*Philip Jenks*

Announcement was made during the recent AED convention in Los Angeles of the appointment of Philip A. Jenks as director of sales for the **"Quick-Way" Truck Shovel Co.** of Denver, Colo., by Gilbert S. Rigdon, executive vice president and general manager of the company. Mr. Jenks was formerly executive vice president and director of sales of the Ward La France Truck Corp. of Elmira, N. Y.

**Crawford, Murphy & Tilly,** Consulting Engineers, of Springfield, Ill., have appointed Charles L. Ritchie, Donald E. Thompson, Carl A. Wieland, and Elmer E. Young associates of the firm. Reorganization of the firm structure followed the recent retirement of Ray V. Tilly, former partner.

John M. Ferry, until recently special assistant for installations to the Secretary of the Air Force, has joined the staff of **Metcalf & Eddy,** Consulting Engineers of Boston 16, Mass.

**United States Pipe and Foundry Co.,** Birmingham, Ala., has established four new sales offices. James W. Wilson will handle sales in the State of New Mexico with headquarters at 123 Mesa Verde, Santa Fe; Cleo C. Whitlock will cover western Texas and make his headquarters at 933 Westwood Dr., Abilene, Texas; James W. Crawley, whose territory is Oklahoma and northwestern Arkansas, will be located at 1013 N. W. 8th St., Oklahoma City 6, Okla. Earle R. Evans will cover eastern Tennessee and Kentucky, except the northern counties. His offices will be at Room 229, 3813 Hillsboro Rd., Nashville 12, Tenn.

*J. T. Pitts*

**Minneapolis-Honeywell Regulator Co.** has announced the appointment of J. T. Pitts as sales manager of its Brown Instruments division, producer of industrial process instruments. He succeeds J. A. Robinson, who has joined the company's six-division Industrial Products Group to coordinate expanding activities in the metals producing areas.

Robert G. Allan, Jr. and Thomas R. Westrope have been named district sales representatives for the Trojan tractor shovel line of **The Yale & Towne Manufacturing Co.** Mr. Allan's territory will be Kentucky, Michigan, Ohio and Pennsylvania west of Harrisburg, and West Virginia. Mr. Westrope will direct the sales of Trojan equipment in Illinois, Indiana, Iowa, Minnesota, eastern Missouri, Nebraska, North and South Dakota, Wisconsin, and the Province of Manitoba in Canada.

James M. Rice of the Natural Rubber Bureau, Washington, D. C., was elected president of the **Association of Asphalt Paving Technologists** at the 36th annual meeting of this group held recently in Charleston, S. C.

**Keasbey & Mattison Co.** has advanced H. L. Krout, Jr., from the position of sales supervisor, Northeastern Pipe District, to the position of assistant district manager Ambler Pipe District, according to P. E. Williams, district manager.

*Chester Foster*

*Stanley Suter*

Stanley H. Suter is the new general sales manager for **Truck Equipment Corp.,** Richmond 35, Va. distributor of the Truxmore Pakker refuse collection body. Chester C. Foster, who served as Mr. Suter's assistant, replaces

*(Continued on page 212)*

**Gain an extra 1½ ft** of dumping height by dumping through the bottom of the bucket. Bottom dump feature also enables the operator to control the rate of flow while spreading materials such as gravel, crushed stone or top soil.

**Fine-grade** with almost motor grader accuracy using scraper action. Exclusive Skid-Shoes on the bottom of the bucket help hold to grade. Your operator can even let go of the controls and still maintain precision accuracy . . . speed up work.

# 3/4-yard clam action Four-in-One

## *expands limited equipment budgets!*

**For just a little more than the price of a conventional ¾-yard tractor loader** you can have a "fleet" of equipment! Only the International® Drott T-340 Four-in-One gives you the actions of bucket, bulldozer, scraper, and clamshell, *all* in one machine.

**Working alone,** one operator with a T-340 Four-in-One can handle a variety of jobs which formerly required a crew with two or three specialized pieces of equipment. Just think of the time and money-saving convenience of such a machine . . . imagine how it would stretch your new equipment and operating budgets. With a Four-in-One, jobs would be completed *right now,* instead of waiting for various pieces of equipment to become available.

**You can count on dependable performance,** too. T-340 and TD-340 crawlers are IH-tough, with International's traditional built-in stamina. Fuel costs are among the lowest for crawlers in the under 50 hp class.

**Find out first hand the many ways** the T-340 can expand limited equipment budgets. Ask your nearby IH dealer for a demonstration soon.

International Harvester
Co., Chicago 1, Illinois

Drott Manufacturing Corp.,
Milwaukee 15, Wisconsin

INTERNATIONAL®
DROTT®

**Back drag with the front half** of the bucket to dress banks or clean out ditches. Tractor remains on firm ground. Alternate equipment needed for doing the same jobs would cost far more.

**Raise the front half of the bucket** all the way and you have an efficient bulldozer. Skid-Shoes hold the blade to grade accurately . . . there's no sudden "suck in" of the blade.

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ENGINEERING;
PLANNING and
OPERATIONAL

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RAILROADS, MOTOR FREIGHT
and TRANSIT FACILITIES

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Permanent Civil Service position open — Engineering Department. Traffic Engineer, 3 year municipal experience desirable in traffic engineering; highway and road design not acceptable substitute. Salary, $6,900-$8,200. Usual fringe benefits. Applicants must be graduate engineers. Send complete resume to Dean S. Robinson, Director of Personnel. City Hall, City of West Palm Beach, Florida.

**DIRECTOR OF PLANNING**

**Salary Range $7,700.00—$8,900.00**

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ONTARIO**

**A progressive and developing city of 84,000**

Applicant must have a diploma of a recognized University in Town Planning or a degree in Civil or Municipal Engineering, Architecture, and completed a post graduate course in city planning, and must also have had actual experience in city and regional planning, urban renewal programs, subdivision design, zoning etc.

Full details of education, experience, training, qualifications, age, date of availability and references, should be mailed to the following address on forms which will be furnished on application—

City Administrator, City of St. Catharines,
**P. O. Box No. 40, St. Catharines, Ont.**

**Assistant Borough Engineer & General Inspector**

The Borough of Grove City, Pennsylvania is receiving applications for the position of Assistant Borough Engineer and General Inspector. Work involves municipal engineering, building inspection, capital budget programming and functional supervision of public works projects including street, water and sewer works. Possibility of eventual appointment as Borough Engineer. Training and experience required: two years of public works engineering experience and a civil engineering degree. Contact Borough Manager, Grove City Borough, 200 East Main Street, Grove City, Pennsylvania for further information.

**OZONE GENERATORS**

Manufacturers representatives & distributors wanted. Unique lease plan assures you high earnings with annuity, saving municipality to $370.00 monthly on lift station odor control. Specified by leading engineers. Exclusive territories.

INVEX, INC., Dept. AC, Box 1335, No. Miami 61, Florida.

**NOTICE TO BIDDERS**

The city of Watseka, Illinois will accept bids for the furnishing and installation of 174-4-way intersection street signs. Bid forms and specifications may be obtained upon request from the City Clerk, Watseka, Illinois, on or before April 7, 1961. Bids will be opened at the regular meeting of the City Council at 7:30 P.M. on April 17, 1961.

**FOR SALE**

Like new—bulldozers, cranes, shovels, trenchers, buckets, attachments, etc. Some can be rented—rental to apply to purchase. Replacement parts such as bushings, shafts, gears, propelling chain etc. for most models at 50% discount. Write for list. A.C.R. Equipment Co., 19615 Nottingham Rd., Cleveland 10, Ohio.

**Our 28th Year in Business**

*(Continued from page 210)*

him as territorial salesman for the states of Maryland and Delaware and seven counties in Pennsylvania.

L. M. G. Dangremond has been appointed Township Engineer for Whitpain Township and Borough Engineer for Hatboro Borough in Horsham Township, both in Montgomery County, Pa. He will serve on a part-time basis for each municipality.

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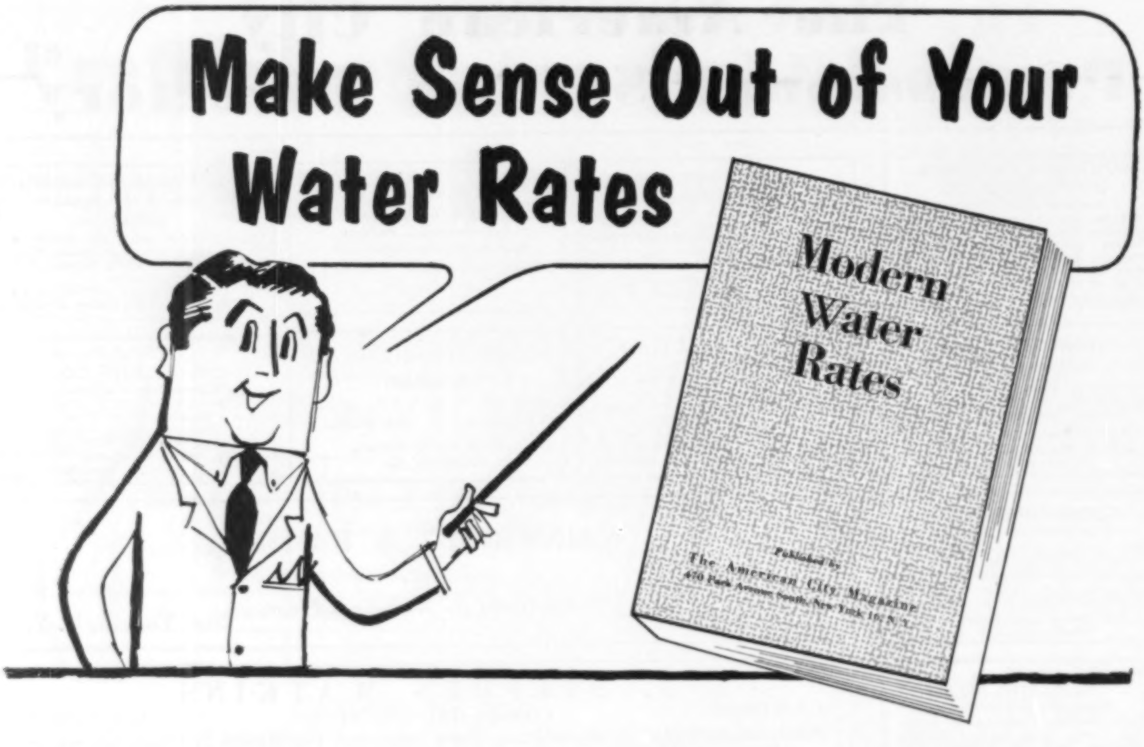
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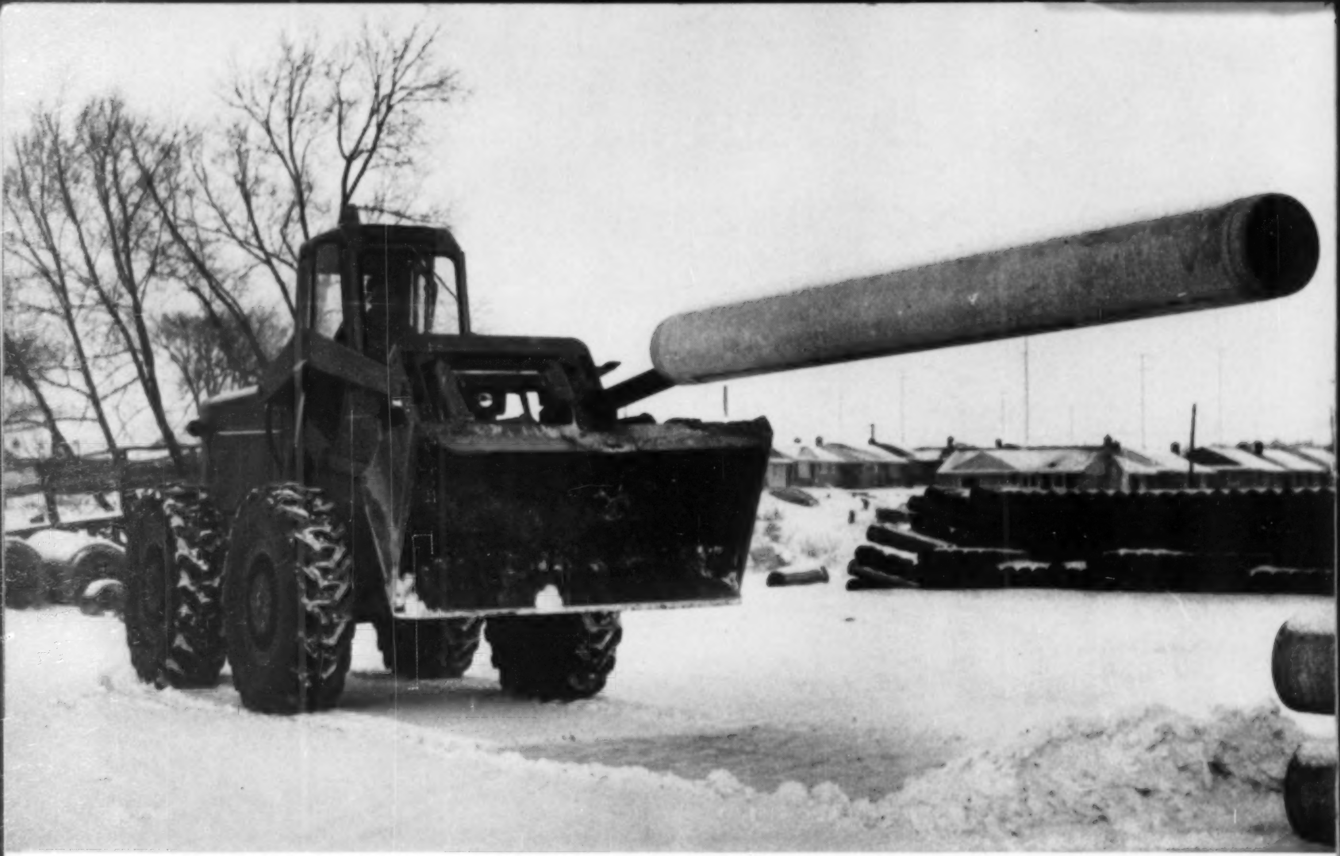

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"We welded special brackets to the top of the Michigan's bucket to hold a detachable 5 inch by 10 ft boom," reports Mr. Dutton. "Now, when there's a call for pipe, we simply drive the 26 mph Michigan over from one of its other jobs, attach the boom, lower the bucket, slip the boom into a pipe . . . and drive away. The machine loads both heavy 24″ x 6′ concrete and 14″ x 13′ transite pipe in the yard, and unloads at the site."

### Assignments include landfill garbage disposal

This same stability helps the torque-converter-drive Michigan perform a wide variety of other digging and loading assignments for the 16,500 people of Waterloo. For example, the machine travels everywhere under its own power to backfill sewer excavations. It truckloads asphalt, gravel and dirt from stockpiles. It removes stumps and trees. Loads broken concrete. Delivers pre-cast catch basin sections. Clears snow from streets. Loads salt and gravel into spreader trucks. And it handles work on the city's two land reclamation and sanitary landfill projects.

"The Michigan is the most economical machine we've ever operated," Mr. Dutton points out. "After 19 months of five and six day week operations, there has been no downtime or major repairs."

You can expect similar economies when you buy a Michigan . . . plus the added bonus of a large selection of money-saving attachments—street sweepers (with or without sprinklers); backhoes; crane hooks; fork lifts; scarifiers; "V", straight and blower type snow plows; tree transplanters; tampers; a wide variety of buckets. See your Michigan Distributor for a no-obligation demonstration.

Michigan is a registered trademark of
**CLARK EQUIPMENT COMPANY**
**Construction Machinery Division**

**CLARK® EQUIPMENT**

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